Study Report 95-02

The U.S. Army Survey of Registered Nurses and the U.S. Army Survey of Nursing Students: Methodology and Results

Peter F. Ramsberger, Jeffrey D. Barnes, and Ani S. DiFazio
Human Resources Research Organization

Ronald Tiggle
U.S. Army Research Institute

April 1995

United States Army Research Institute
for the Behavioral and Social Sciences

U.S. ARMY RESEARCH INSTITUTE FOR THE BEHAVIORAL AND SOCIAL SCIENCES

A Field Operating Agency Under the Jurisdiction of the Deputy Chief of Staff for Personnel

EDGAR M. JOHNSON
Director

Research accomplished under contract for the Department of the Army

Human Resources Research Organization

Technical review by

Dinah L. Halopka
Wendell W. Wilson

NOTICES

DISTRIBUTION: Primary distribution of this report has been made by ARI. Please address correspondence concerning distribution of reports to: U.S. Army Research Institute for the Behavioral and Social Sciences, ATTN: PERI-POX, 5001 Eisenhower Ave., Alexandria, Virginia 22333-5600.

FINAL DISPOSITION: This report may be destroyed when it is no longer needed. Please do not return it to the U.S. Army Research Institute for the Behavioral and Social Sciences.

NOTE: The findings in this report are not to be construed as an official Department of the Army position, unless so designated by other authorized documents.

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	1995, April	Final Aug 93 - Aug 94

4. TITLE AND SUBTITLE
The U.S. Army Survey of Registered Nurses and the U.S. Army Survey of Nursing Students: Methodology and Results

5. FUNDING NUMBERS
MDA903-93-D-0032
65803A
D730
1332
C3
D.O. 0003

6. AUTHOR(S)
Ramsberger, Peter F. (HumRRO); Barnes, Jeffrey D. (HumRRO); DiFazio, Ani S. (HumRRO); and Tiggle, Ronald (ARI)

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
Human Resources Research Organization
66 Canal Center Plaza, Suite 400
Alexandria, VA 22314

8. PERFORMING ORGANIZATION REPORT NUMBER
--

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)
U.S. Army Research Institute for the Behavioral and Social Sciences
ATTN: PERI-RP
5001 Eisenhower Avenue
Alexandria, VA 22333-5600

10. SPONSORING / MONITORING AGENCY REPORT NUMBER
Study Report 95-02

11. SUPPLEMENTARY NOTES
Contracting Officer's Representative, Ronald Tiggle.

12a. DISTRIBUTION / AVAILABILITY STATEMENT
Approved for public release; distribution is unlimited.

12b. DISTRIBUTION CODE
--

13. ABSTRACT *(Maximum 200 words)*

This report details the methodology of and preliminary results from surveys of registered nurses (RNs) and nursing students. Representative samples of each were selected and their attitudes toward various aspects of nursing, and military nursing in particular, were assessed. The results indicate that there is a great deal of similarity between current and future RNs in terms of reasons for entering the field and positive and negative influences in that regard. Overall, current nurses were satisfied with their field, although there were areas of significant dissatisfaction (e.g., the amount of paperwork). The level of familiarity with the Army Nurse Corps (ANC) was high, and many aspects of the ANC were attractive to both current and future RNs. However, the possibility of relocation, chance of serving in/around combat, prospect of weekend Reserve duty, and military lifestyle were seen by large portions of each sample as being negative attributes of military service. Interest in enlisting in the ANC was fairly low among both groups, with significant portions of respondents indicating that the probability that they would join was smaller following Operations Desert Shield and Desert Storm.

14. SUBJECT TERMS		15. NUMBER OF PAGES
Nursing	Registered nurses	150
Army Nurse Corps		16. PRICE CODE
Student nurses		--

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	Unlimited

Study Report 95-02

The U.S. Army Survey of Registered Nurses and the U.S. Army Survey of Nursing Students: Methodology and Results

Peter F. Ramsberger, Jeffrey D. Barnes, and Ani S. DiFazio
Human Resources Research Organization

Ronald Tiggle
U.S. Army Research Institute

Organization and Personnel Resources Research Unit
Paul A. Gade, Chief

Manpower and Personnel Research Division
Zita M. Simutis, Director

U.S. Army Research Institute for the Behavioral and Social Sciences
5001 Eisenhower Avenue, Alexandria, Virginia 22333-5600

Office, Deputy Chief of Staff for Personnel
Department of the Army

April 1995

Army Project Number
2O665803D730

Personnel and Training
Analysis Activities

FOREWORD

This report presents the methodology for and preliminary results from the U.S. Army Survey of Registered Nurses and the U.S. Army Survey of Nursing Students. These studies were conducted to gather data on registered nurses' (RNs) and nursing students' knowledge about, and attitudes toward the Army Nurse Corps (ANC) and military nursing in general. In addition, data were collected on such topics as funding sources for education, reasons for entering the field of nursing, and (among those already in the profession) current job satisfaction. The goal of this effort was to provide information to evaluate recruiting programs and incentives, as well as assist in the design of other options to attract qualified RNs to both the active duty and Reserve/Guard ANC.

This report was prepared by the Human Resources Research Organization (HumRRO) under the contract entitled *Manpower and Personnel Research and Studies (COMPRS) for the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI)*. Ronald Tiggle, ARI, served as the technical monitor. In addition, the United States Army Recruiting Command's Program Analysis and Evaluation and Health Services Directorates and Office of the Chief, Army Nurse Corps, provided guidance and support for this effort. The Reserve Officer Training Command and the Military Entrance Processing Command both provided assistance in obtaining student nurse sample data at selected schools.

The HumRRO project director for this study was Peter Ramsberger. Charles Cowan, a consultant to HumRRO, developed both the sampling and weighting plans. Ani DiFazio was instrumental in coordinating and carrying out the sample selection. Kerry Brown and Rita Nee took principal responsibility for various aspects of survey distribution and processing. They also participated in the development and implementation of the coding schemes for open-ended responses to both surveys. Jennifer Naughton supervised this activity. Jeffrey Barnes was primarily responsible for assembling the databases and performing the analyses described in this report. The project was administered in HumRRO's Personnel Selection and Classification program area, whose director is James Harris.

EDGAR M. JOHNSON
Director

THE U.S. ARMY SURVEY OF REGISTERED NURSES AND THE U.S. ARMY SURVEY OF NURSING STUDENTS: METHODOLOGY AND RESULTS

EXECUTIVE SUMMARY

Requirement:

The Army Nurse Corps (ANC) is composed of approximately 18,750 registered nurses (RNs) (4,000 active duty and 14,750 Reserve Officers). Current requirements to maintain readiness are approximately 1,400 new nurse accessions each year (400 active duty and 1,000 Reserve). A key to meeting this goal is being aware of the attitudes about, and perceptions of, military nursing among current and future RNs. Toward this end, the U.S. Army Survey of Registered Nurses and the U.S. Army Survey of Student Nurses were undertaken.

Data were collected from each group on reasons for entering the profession, educational background, means of educational funding, familiarity with and perceptions of military nursing, and media habits. In addition, RNs were asked a variety of questions about their current work situation, including job satisfaction.

This information can be used to form a general picture of registered nurses and nursing students in the United States today. Data on the importance of work elements, perceptions of military nursing, and current propensity for join provide those responsible for recruiting Army nurses with a valuable source of information for developing programs and policies that are likely to succeed in meeting recruiting goals.

Procedure:

Nurses. Because of time and cost restrictions, a simple random sample of RNs was not possible. Thus a two-stage sampling procedure was used in which states, and then RNs in those states, were selected to participate. A final sample of 3,000 RNs, 45-years-old and younger (e.g., militarily eligible), was desired. With an anticipated response rate of 50%, and assuming that 85% of those contacted would be working in the field and 65% would be age-qualified, a mailout sample of 10,860 needed to be drawn.

The primary sampling frame was made up of the 50 states and the District of Columbia; the secondary sampling units were nurses within those jurisdictions. Data were collected to ascertain the number of registered nurses in each state. It was determined that

the optimal number of states to be sampled was ten. A random number was selected between 1 and 253,330 (the entire nurse population/the number of states to be sampled). The states were placed in order by RN population, with the number of nurses in each listed as a cumulative frequency. The state containing the random number was the first selected for the sample. This process was then repeated to select the remaining nine states. Thus, states were chosen in the first stage with selection probabilities directly proportional to the number of RNs in each. Rosters of registered nurses were obtained from these states, and a random selection methodology was used to identify the individual nurses to be included in the sample.

The surveys themselves were developed in conjunction with the sponsor, and included both new and previously used questions. The draft instrument was pretested on a small sample of RNs in the Washington, D.C., area and revised to eliminate sources of confusion.

Because of problems in obtaining RN rosters from certain states, the survey mailings took place in two phases. In the first phase, advance letters from the Chief of the ANC were sent to each of the participants in eight states explaining the nature of the survey and requesting cooperation. Approximately 2 weeks after the advance notification, the survey instruments were mailed. Finally, some 2 weeks later, reminder letters were sent to nonrespondents, who were provided a toll-free number to call with questions or problems. This same sequence was followed with the remaining two states when their rosters were obtained.

As returns were received, they were checked to make sure that they could be properly scanned. Where updated address information was obtained (e.g., letter/survey returned as undeliverable with forwarding address), new advance letters and surveys were sent. The overall response rate to this survey was 26.7%. Although the number of completed surveys exceeded the goal of 3,000, 52.3% of those responding did not meet the eligibility criteria (e.g., they were over 46 years old and/or were not employed as a nurse).

Due to the poor response rate, adjustments were required to make the sample representative of the population of RNs. As a first step, the respondents to this survey were compared to those in a national survey of nurses conducted by the Public Health Service (PHS) in 1988. With a response rate of just over 80% and a final sample size of 33,196, the results from the PHS study can be treated as true population values. Chi-square tests were run to determine if the sample from the present study differed significantly from the population in terms of gender, age, race/ethnicity, and marital status. It did in every case. Therefore, using iterative proportional fitting (IPF), the sample was redistributed so that the marginals of the four-way distribution corresponded exactly to the population. Two sets of weights were derived to reflect both the overall RN population and the 45-and-younger subset.

Students. The required sample of nursing students was 2,000 juniors and seniors from colleges across the United States with accredited nursing programs leading to a Baccalaureate Degree in nursing. Assuming a 50% response rate, a mailout sample of 4,000 was needed. It was further assumed that none of the schools in the sample would have less than 25 junior and senior students, and the number of respondents from each school was set at 25. This resulted in a need for 160 nursing schools to participate in the data collection.

A list of the 616 Bachelor of Nursing programs in the United States as of Fall of 1990 was obtained from the American Association of Colleges of Nursing. Each of these schools was sent a package explaining the nature of the project and requesting cooperation. A short survey was included asking for the number of students enrolled, semester beginning and end dates, and willingness to cooperate. Of the 306 schools that responded, 243 agreed to take part. These were ordered from largest to smallest. Using a random starting point, every n_{th} (n = Total Number of Nursing Students/Number of Schools in Sample (160)) school was picked until 172 had been selected. (The extra 12 schools were included to account for noncompliance.) Each school was contacted anew to assess continued willingness to participate. When a significant number (30) declined, an additional sample of 30 schools was picked, and the survey procedure was repeated.

As with the RNs, the survey instrument itself was developed in conjunction with the sponsor and pretested with a small sample of nursing students from Washington, D.C., area schools. Certain items were common to both surveys to allow for direct comparisons between RNs and students.

Advance letters were sent to each of 172 schools approximately 2 weeks before the distribution of the surveys themselves. Instructions for randomly picking a sample of students were included. Packages of 25 surveys and cover letters, an additional copy of the instructions, and a postage paid return envelope were mailed the week of November 8, 1993. After receiving several inquiries concerning the feasibility of delaying administration until the next semester (January 1994), a follow-up letter was sent to all nonresponding schools early in the new year to alert participants to the fact that their input was still welcome.

Student surveys were processed using the same procedure described for the RNs. Responses were received from 114 of the 172 schools in the mailout sample, yielding a school response rate of 66.3 percent. Not all schools were able to gather responses from as many as 25 students. In fact, the total number of completed questionnaires was 1,651, yielding an average of 14.5 surveys per school. This final total falls somewhat short of the 2,000 desired, and represents a response rate of 38.4 percent of all of the surveys sent out.

Findings:

Nurses. The data presented in this report were weighted so as to reflect the population of military-eligible RNs in the United States (e.g., 45-years-old and younger). The sample

was predominately female (96%), White (92%), and married (72%). The largest proportion of respondents had at least a BSN degree (57%), with 2-year (25%) and 3-year (16%) degree holders also well represented. (Two percent had some other credential.) When examined by the year in which the degree was obtained, the results reflect a trend over the past 2 decades, with the number of 3-year degrees declining, while 2- and 4-year graduates increased substantially. Some 17% of the sample reported that they had achieved professional certification in specific areas of nursing, the most popular of which were critical care (15%), and medical-surgical (9%).

The most often cited reason for selecting nursing was to help others (53%). The range of practice opportunities (15%) and job security (10%) wee the other most frequently given reasons for choosing the field. Parents, friends, siblings, and nursing instructors were most often cited as influences regarding the decision to become a nurse. Of those citing each source of influence, the highest positive proportions were parents, "others," spouses/partners, and nursing instructors.

Just over 71% of the respondents were working in a hospital at the time of the survey, with intensive care (25%) and specialty bed units (23%) the most frequently cited departments by those employed in hospitals. The majority of respondents were staff nurses (54%), with a wide dispersion among the other 21 categories provided. The majority of these RNs indicated that they worked 31-40 hours a week, with patient care responsibilities taking up the largest share of that time. One-quarter of the full-time nurses indicated that their 1992 gross income was between $30-35,000, while 22% made $35-40,000, and 14% each grossed $25-30,000 and $40-45,000.

These respondents were typically satisfied or very satisfied with nursing as a career (81%), although nearly 9% expressed some dissatisfaction. Among the dimensions of nursing that were rated important or very important, those with the highest percentages expressing dissatisfaction were the amount of paper work (37%), lack of employer-provided educational benefits (34%), morale in the workplace (33%), and level of acknowledgment for job performance (30%).

Some 6% of the sample members had served or were serving in the military. Nearly half of these (48%) cited the Army as their branch of service. In another measure of military contact, 60% of the RNs had a parent that served in the military, while 26% had one or more siblings who had served. Finally, 36% of the respondents knew someone who had served in the ANC, and 48% had worked with former military nurses.

The visibility of the ANC among sample members was high, with 77% indicating that they had at least heard of Army nursing. The most common first source of information on the ANC was mailings (36%), followed by journal advertisements (17%) and career fairs (11%). Slightly over one-quarter of the sample had actually discussed joining the ANC with someone; that someone was most frequently a spouse or partner (22%), a military recruiter (21%), mothers (15%), and fathers (13%). Generally impressions of the ANC were

positive, with 48% of those who had discussed the possibility of joining indicating that their views were positive or very positive.

Those respondents who had known and/or worked with nurses with ANC experience were asked to compare them on a variety of dimensions to RNs without such a background (e.g., Nurses with ANC experience are more dependable). Generally, around 20% of the sample indicated that they didn't know enough to make such a judgment, while between 25-45% neither agreed nor disagreed. Among the dimensions that former Army nurses scored highest on were self-confidence, having respect for others, being good team players, and being able to adjust to new circumstances.

In another series of items, respondents were asked to indicate whether they felt various aspects of military nursing were positive, neutral, or negative influences in terms of the decision to volunteer. Over three-fourths of the sample indicated that retirement benefits, educational opportunities, and health care benefits were either very positive or positive attributes of military service. On the other hand, more than half of the respondents rated the possibilities of relocation and service in/around combat, weekend duty, and the military lifestyle negatively or very negatively. When asked to compare military and civilian nursing as to how rewarding they were thought to be, 54% said they were the same, while the remaining 46% split evenly over whether the military or civilian sector is more rewarding. Furthermore, 47% of the sample felt that the Army would provide better starting pay, and 76% thought that earnings over the course of an entire career would be higher in the military.

Propensity to join the military was assessed for two time periods, with respondents asked to indicate the likelihood that they would have considered becoming a military nurse prior to and after Operations Desert Storm/Shield (ODS/S). They were asked about both active duty and Reserve service, yielding four questions overall. Generally, the percentages indicating any interest in joining (definitely/probably consider) were low for both time referents, with a higher percentage willing to consider the Reserve. Post-ODS/S drops in the percentage indicating an interest were experienced for both components. Active duty positive propensity dropped from 10% pre-ODS/S to 6% after the war. Interest in Reserve service also declined, going from 20% pre-ODS/S to 11% after.

Students. The average age of nursing students was 28.6 years, with nearly 12% of the sample members being males. These results reflect national trends indicating an older student population and a greater number of men turning to the field of nursing. Given the relative youth of the sample (as compared to the RNs), it is not surprising that a higher percentage had never been married (56%) and were without children (68%).

The largest single segment of the student sample (38%) indicated that their tuition charges for the previous semester fell between $500 and $1,500. When asked to indicate what the total cost of their education would be upon completion, similar percentages (10-13%) fell into five $5,000 categories spanning $5,000 to $30,000. Among the primary

sources of educational funding cited by respondents were personnel employment (49%), parental contributions (39%), personal savings (36%), and state or local grants or scholarships (35%). Although 40% of the sample indicated that they would not owe money for their education upon graduation, the remaining 60% were incurring some debt on the road toward their degrees.

As with the RNs, caring for people was the most important reason for wanting to become a nurse, accounting for 53% of the responses given. In fact, the most remarkable thing about the student results in this regard is how closely they mirror those provided by nurses already in the field, typically varying by less than 1%. The same was true for influences on entering nursing, with parents, "others," spouses, nursing instructors, and friends being cited most frequently as positive influences.

When asked to indicate what type of position they would like to have at various points in their careers, staff nurse was the most popular goal immediately following graduation (40% of selections). Head nurse (11%), charge nurse (10%), and clinical nurse specialist (10%) were the most frequently cited 5-year goals; nurse practitioner (10%), administrator (9%), and professor (8%) were seen as 10-year positions.

The students were given the same work dimensions as the RNs and asked to rate their importance. Rather than rate current satisfaction, however, the future nurses were asked to indicate where they felt such goals could be obtained more easily—in a civilian or military setting. Nearly all of the dimensions were rated as important or very important by the majority of the students, however, the military was not judged to be a better path toward these goals in most cases. In 12 of the 28 domains given, the bulk of the respondents indicated that they weren't sure where the goal could best be met. In seven others the military and civilian sectors were judged to provide equal opportunities. Civilian nursing was given the edge in eight categories, leaving "opportunity to continue education funded by employer" as the only domain where the military was judged superior.

About 5% of the sample had military experience themselves, while 53% had parents who had served and 23% had a sibling who was a current servicemember or veteran. Sixty-seven percent of the students had heard of the ANC, with visits by recruiters (25%), career and job fairs (18%), and the mail (16%) being the most frequently cited sources of information. Of those who had actually talked about joining the military, the majority indicated that their impressions based on such conversations were positive.

As with the nurses, students were asked to indicate whether a range of attributes of military service were positive, neutral, or negative inducements towards enlistment. Over three-quarters of the sample rated retirement benefits, health benefits, and stable employment as positive or very positive aspects of the ANC. Entry bonuses (74%), opportunities for education and training (73%), life insurance (73%), and the chance to have a second income (Reserve/Guard) (71%) were also pluses for the military. The factors receiving the most negative feedback were the possibility of having to relocate (61%) and/or serve in combat

(59%), the military lifestyle (46%), the Reserve requirement for weekend duty (43%), and the length of the commitment (41%).

Overall, there was a higher propensity for military service among the students than among the RNs. When asked to retrospectively assess their propensity prior to ODS/S, some 15% of the students indicated a positive inclination to consider active duty military nursing, while 20% said they would have probably or definitely considered the Reserve. As with the RNs, both of these percentages dropped when the time referent was post-ODS/S (i.e., current, rather than retrospective), in this case to 12% for active duty and 17% for the Reserve.

Modeling Propensity for Military Nursing Service. Regression analyses were performed in an attempt to uncover those characteristics or attitudes that were most strongly related to post-ODS/S propensity. Although the amount of variance in propensity accounted for was small across the board, some relationships were found. Current RNs, those with an interest in active duty nursing, placed a higher importance on conducting research, were single, placed lower importance on time for personal or family life, placed high importance on the chance to attend specialty courses, were dissatisfied with current opportunities to help others, and placed low importance on working in the area or role of their choice. Nurses with relatively high propensity for the Reserve were interested in conducting research, attending specialty courses, having higher current incomes, having siblings in service, being currently enrolled in school, and having children at home.

For students, the active and Reserve models were very similar, with those more inclined toward military service placing greater importance on opportunities for continuing education, knowing a current or former Army nurse, placing lower importance on flexibility of schedule, being single, and having a large school debt.

Utilization of Findings:

Given the high visibility of the ANC in both populations, the positive evaluations given many aspects of military nursing, and the apparent high regard for Army nurses among current RNs, it appears that the Army has done a relatively good job in promoting military nursing. However, there does seem to be room for improvement among the students in terms of their knowledge of what the military has to offer. This is suggested by the fact that large percentages were unable to respond when asked to compare military and civilian nursing in regard to various career opportunities.

There are some clear obstacles to joining the ANC as perceived by both current and future RNs, including serving in/around combat zones, relocating, making the commitment to a multi-year enlistment, and adapting to the military lifestyle. Some, if not all, of these elements are seen as essential to the Army way of life, and acceptance of them would seem to be crucial to successfully serving.

The data should be thoroughly examined if the ANC is to capitalize on the substantial number of areas with which current RNs are presently dissatisfied. To the extent that programs/policies are, or can be, put into place to address such concerns, the ANC will have an advantage over the civilian world of nursing. In addition, gaps in the knowledge of current and future nurses regarding the ANC and its programs can be identified through these databases, with subsequent recruiting efforts and appeals emphasizing those elements that may not be currently working in favor of the ANC.

THE U.S. ARMY SURVEY OF REGISTERED NURSES AND THE U.S. ARMY SURVEY OF NURSING STUDENTS: METHODOLOGY AND RESULTS

CONTENTS

LIST OF TABLES

CONTENTS (Continued)

CONTENTS (Continued)

CONTENTS (Continued)

Page

LIST OF FIGURES

THE U.S. ARMY SURVEY OF REGISTERED NURSES AND THE U.S. ARMY SURVEY OF NURSING STUDENTS: METHODOLOGY AND RESULTS

Chapter 1
Introduction

There are some 2,533,000 registered nurses (RNs) in the United States (Lerro, Morrison, & Ramsberger, 1992). Of these, it is estimated that approximately 80% are currently employed in the field, whereas the remainder are either retired or employed in other arenas (Finfgeld, 1991).

There are a variety of educational paths that nurses can take to become part of their profession. Currently, individuals who receive a two-year associate degree, a three-year diploma, or a four-year Bachelor of Science in Nursing (BSN) are eligible to take the examination for licensure. In the 1991-92 academic year, approximately two-thirds of new graduates matriculated from associate degree programs; less than 10% attended diploma programs, whereas about one-quarter of those receiving degrees obtained BSNs (National League of Nursing Press, 1993). Traditionally, there has been little differentiation between these educational levels in terms of compensation, although this situation began to change in the late 1980s at the urging of a number of professional organizations (e.g., the National League of Nurses, the American Nurses Association).

Until recently, there was much concern over an apparent shortage of nurses in both the civilian and military sectors. In the first week of December 1986, for instance, an average of 13.6% of budgeted hospital RN positions were unfilled (Whaley, Young, Adams, & Biordi, 1989). This situation was even more severe in urban areas, where an average 15% of positions were vacant (Roberts, Minnick, Ginzberg, & Curran, 1989). Over the years, a variety of studies have been carried out to determine the root causes of this shortage and how they can be addressed. Several common themes emerged to explain the difficulties potential employers were having filling nursing positions. These include:

- *Relatively low compensation levels.* Given the nature of the work done by RNs and the responsibilities they are expected to accept, nursing has been plagued in the past by a relatively low salary structure. Even though this situation has begun to change somewhat in terms of entry level salaries, the issue of wage compression remains; that is the gap in compensation between entry- and senior-level positions is small compared to that found in other fields (Stone & Turner, 1992).

- *Widening opportunities for women.* Over the past two decades, formal and informal restrictions on the occupational choices available to women slowly began to fall. Many formerly male-dominated fields offered higher compensation levels and prestige, and thus were more attractive to young women who may have selected nursing as a career when their options were fewer.

- *Low levels of occupational esteem.* The image of the professional nurse has suffered. Hayes (1993) described nursing as a field that has traditionally been characterized as a woman's profession, with a history of submission, docility, and acceptance of the status quo. A 1993 study examined the image of nursing among college-bound high school seniors, and found that relatively few thought that nurses do important work, that the field is challenging or important, or that it provides a good opportunity to help people (Stevens & Walker, 1993).

- *Low levels of job satisfaction.* Surveys of nurses have generally indicated that, although there is a high level of dedication to the field, there is also widespread dissatisfaction concerning issues such as scheduling, pay, responsibility, and career growth (Neathawk, Dubuque, & Kronk, 1988).

As the nursing shortage continued and threatened to worsen, both civilian and military health care institutions/leaders began to look for ways to attract and retain nursing personnel. The issues of salary levels and compensation linked to educational attainment were examined. In addition, programs involving such elements as participatory management, enhanced career advancement opportunities, and continuing education were tried by various institutions (Schultz & Brown, 1994).

And then everything changed. Economic conditions, along with a growing concern over the cost of medical care and intensifying discussions concerning major health care reform, led to belt tightening throughout the industry. In the process, the shortage of RNs became, at least temporarily, a thing of the past. Nationally, the vacancy rate for hospital RN positions fell to five percent during 1992 (16 positions per facility), approaching 1983's record low of 13 vacancies per facility. For positions that have traditionally been easy to fill, vacancy rates have been reported as low as four percent (American Hospital Association, 1993).

And yet, with the health care industry in such a state of flux, few can predict what tomorrow will bring. It is quite likely that the roles and responsibilities of nurses will evolve as changes in the medical care delivery system are put into place. For instance, there are those suggesting that many functions now performed by doctors can, and should, be opened to RNs to increase both efficiency and cost-effectiveness.

In addition to the issues cited above that are affecting all health care institutions, the military faces additional challenges. For instance, recent American involvement in the Middle East and Africa have most likely heightened the awareness of the importance of the health care professional to the military mission, as well as (re)sensitizing young people and civilians in general to the dangers that military life may involve. At the same time, there is evidence to suggest that, despite the downsizing currently taking place throughout the Department of Defense, reductions in recruiting resources as well as a shift in the perceptions of young people regarding the military as a secure (first) career choice, may have a negative impact on the ability of the Army and other Services to recruit individuals to fill the ranks of its Nurse Corps.

It is in this environment that the U.S. Army Surveys of Registered Nurses and Nursing Students were initiated. Representative samples from both groups were questioned about their reasons for entering nursing, their satisfaction with the field, their perceptions of military nursing, and educational and other background variables. This information will not only inform Army recruiting managers as they face the challenges ahead, but will also provide a glimpse of the nursing profession as a whole at a time of potentially great upheaval.

Chapter 2

Methodology

Sampling

Two samples of nurses were required -- 3,000 registered and 2,000 student nurses. The methodology used to derive the two sampling frames is described below.

Registered Nurse Sample

Sampling Frame of Registered Nurses. The sampling frame included all RNs in the U. S. currently working as a full-time nurse who are 45 years old or less (thus eligible for entry into the military). The 50 states and the District of Columbia were contacted to ascertain the number of registered nurses in their jurisdictions (see Table 1). The total number of nurses (excluding New Hampshire which would not provide the information due to state law) was **2,533,300**.

Sampling Strategy for Registered Nurses. A representative sample of registered nurses in the United States was required. Conceptually, the easiest approach would have been to construct a list of all 2.5+ million nurses and randomly select from that list. Unfortunately, the costs associated with this methodology are very high. A more efficient way to achieve the goal is to employ a self-weighting methodology.[1] To construct such a sample, the population must be defined in terms of primary sampling units and ultimate (or secondary) sampling units. In this instance, the primary sampling units were States, and the ultimate sampling units were individual nurses. In a self-weighting cluster sample, the product of the probability of selecting a primary sampling unit and the probability of selecting an ultimate sampling unit given a primary sampling unit is the same across all clusters. That is, all ultimate sampling units are equally likely to be selected. To implement this procedure, we determined the number of primary sampling units (i.e., states) to include, randomly selected those units, and then randomly selected an equal number of nurses from each.

The methodology called for a final sample of 3,000 registered nurses. To determine how many surveys needed to be mailed to achieve this figure, a response rate (with follow-up) of 50

[1] A self-weighting sample is a special form of a cluster (or area) sample where the probability of any ultimate sampling unit (i.e., nurses) entering the sample is the same.

percent was assumed. This was considered conservative in light of a response rate of 80.7 percent achieved in a 1988 national survey of the same population (Moses, 1990). Based on the results of this same study, it was assumed that 85 percent of the RNs on the state rosters would be actively working in nursing, and that 65 percent would be 45 or younger. These estimates were used in calculating the required size of each of the state samples.

Table 1
Number of Registered Nurses by State

State	Number of Nurses	Cumulative Frequency	Random Number	t = N/n	Selection Probability	State	Number of Nurses	Cumulative Frequency	Random Number	t = N/n	Selection Probability
NY	225,000	225,000		207	.000429	CO	30,000	2,187,000		28	.000429
CA	220,000	445,000	231,575	203	.000429	IA	30,000	2,217,000		28	.000429
PA	178,000	623,000	484,905	164	.000429	*KS*	26,000	2,243,000	2,258,215	24	.000429
OH	127,000	750,000	738,235	117	.000429	OK	24,000	2,267,000		22	.000429
TX	125,000	875,000		115	.000429	SC	24,000	2,291,000		22	.000429
FL	120,000	995,000	991,565	110	.000429	HI	23,000	2,314,000		21	.000429
IL	108,000	1,103,000		99	.000429	AR	21,000	2,335,000		19	.000429
MI	102,000	1,205,000		94	.000429	WV	20,000	2,355,000		18	.000429
NJ	102,000	1,307,000	1,244,895	94	.000429	DC	19,000	2,374,000		17	.000429
MA	93,000	1,400,000		86	.000429	MS	19,000	2,393,000		17	.000429
VA	65,000	1,465,000		60	.000429	ME	18,000	2,411,000		17	.000429
NC	63,000	1,528,000	1,498,225	58	.000429	NE	17,000	2,428,000		16	.000429
IN	61,000	1,589,000		56	.000429	RI	14,000	2,442,000		13	.000429
GA	57,000	1,649,000		52	.000429	UT	14,000	2,456,000		13	.000429
MO	57,000	1,703,000		52	.000429	DE	10,000	2,466,000		9	.000429
WS	55,000	1,758,000	1,751,555	51	.000429	MT	9,900	2,475,900		9	.000429
MD	52,000	1,810,000		48	.000429	NV	9,900	2,485,800		9	.000429
WA	50,000	1,860,000		46	.000429	NM	9,600	2,495,400		9	.000429
MN	47,000	1,907,000		43	.000429	SD	8,000	2,503,400		7	.000429
TN	46,000	1,953,000		42	.000429	ID	7,800	2,511,200		7	.000429
AZ	40,000	1,993,000		37	.000429	*ND*	7,100	2,518,300	2,511,545	7	.000429
CT	39,000	2,032,000	2,004,885	36	.000429	VT	7,000	2,525,300		6	.000429
LA	32,000	2,064,000		29	.000429	AK	4,000	2,529,300		4	.000429
AL	31,000	2,095,000		29	.000429	WY	4,000	2,533,300		4	.000429
KY	31,000	2,126,000		29	.000429	NH	—	2,533,300		0	.000000
OR	31,000	2,157,000		29		Total	2,533,300	START = 251,575		*States included in sample*	

Sampling Procedures for Registered Nurses. The following steps were taken to identify the sample.

1. *Determine size of mailout sample.* The lists obtained from the states contained all registered nurses licensed to practice. The mailout sample had to be sufficiently large to account for screening loss (those not active and not age qualified for military service) and non-response. The following formula was used to derive the size of the mailout required to achieve a final sample size of 3,000:

$$\frac{3{,}000}{.50 * .85 * .65} = 10{,}860$$

Where .50 = assumed response rate; .85 = percent of RNs actually working in the field, and; .65 = percent age-qualified (i.e., $\leq$ 45 years-old).

2. *Determine the number of states to select.* There were several criteria to consider in determining the number of clusters to include. Ideally, we wanted to ensure that the number of clusters was less than or equal to the maximum number that guaranteed that a primary sampling unit could enter the sample once. In addition, there had to be enough clusters to ensure that the sampling rate from any given state was not excessively high (greater than 25%). With these criteria in mind, we determined the maximum number, by dividing the total population of nurses by the nurse population of the biggest sampling block (New York, with 225,000 nurses). Without splitting lists into smaller components, the maximum number of state lists was 11. The smallest states have 4,000 nurses. To ensure a sampling rate of no more than 25% within any one state required that at least 10 states be included. In addition to satisfying the aforementioned criterion, this would ensure that the sample would include large and small states, as well as achieve reasonable geographic representation.

3. *Determine the states from which nurses were to be sampled.* First, the total number of nurses was divided by the number of states to be selected, as follows:

$$\frac{2,533,300}{10} = 253,330$$

In essence, this number reflects the fact that, if we wanted to include one nurse from each of ten states we would have to pick every 253,330th nurse.

The states were rank ordered by number of nurses registered in each, as shown in Table 1. We could have *randomly* ordered the states, however, ordering by size guaranteed that states with varying RN populations would be included in the sample. In addition, we avoided including two or more of the smaller states where the probability of being included in the sample is relatively high.

If each of the nurses is thought of as having a number, then nurses 1 through 225,000 are in New York, nurses 225,001 through 445,000 are in California, and so on. Next we selected a random number between 1 and 253,330 as a starting point; this was 231,575. As seen in Table 1, nurse 231,575 was in California, which therefore was included in the sample of states. Nurse 484,905 (231,575 + 253,330) was from Pennsylvania. This process continued until adding 253,330 to the last number exceeded the total number of registered nurses in the country. Thus, North Dakota was the final state included (nurse 2,511,545 falls in this state). This process resulted in the selection of the ten states noted in Table 1.

By employing a random selection process, we created 253,330 "necklaces" of 10 primary sampling units (i.e., states). The probability of any state entering the sample was the nurse population of the state divided by 253,330. Ordering the states by size does not change the probability that a state will enter the sample; it just ensures that the sample will not consist entirely of states with large nurse populations or have an unrepresentative number of states with small nurse populations.

3. *Determine number of nurses to be selected from each state.* To be self-weighting, the number of ultimate sampling units (nurses) from each primary sampling unit (states) must be the same. Accordingly, the number of nurses to be sampled from each state (n) was:

$$n = \frac{10{,}860}{10} = 1{,}086$$

4. *Draw sample.* The order of nurses on each of the selected 10 lists was randomized. To obtain 1,086 nurses from each state, we selected every t_ith nurse, where:

$$t_i = \frac{\textit{Total Number of Nurses within State}}{1{,}086}$$

So, using New York as an example, to obtain 1,086 nurses, we selected:

$$t_{NY} = \frac{225{,}000}{1{,}086} = 207$$

or every 207th nurse from New York (t_{NY}). Operationally, this was achieved by assigning a random number to each nurse in a list, sorting the list by this random number in descending order, and selecting the first 1,086 nurses in the sorted list. This procedure is equivalent to randomly selecting a "starting point" from 1 to t_i and then selecting every t_{ith} nurse until 1,086 nurses have been identified from each of the ten states.

5. The probability of any nurse being selected into the sample was:

$$\frac{N_i}{N_t \,/\, 10} * \frac{1{,}086}{N_i} = \frac{10 * 1{,}086}{N_t}$$

where N_i = *Nurse population of State*$_i$

and where

$$N_t = \sum_{i=1}^{51} N_i$$

Consider an example. New Jersey had an estimated nurse population of 102,000. Using the take-every strategy, the probability of New Jersey being included in the sample was:

$$\frac{N_i}{N_t \,/\, 10} = \frac{102{,}000}{2{,}533{,}300 \,/\, 10} = 0.402$$

With 1,086 nurses selected from New Jersey, the probability of an individual nurse being selected was:

$$\frac{1{,}086}{N_i} = \frac{1{,}086}{102{,}000} = 0.0106$$

Since the selection of states and individual nurses was independent, the joint probability of selecting an individual nurse from New Jersey was the product of the probabilities. That is:

$$\frac{102{,}000}{2{,}533{,}300/10} * \frac{1{,}086}{102{,}000} = 0.000429$$

As shown in Table 1, this probability was the same across all states.

6. Weights for all nurses are the inverse of the sampling probabilities. That is:

$$\frac{N_t}{10{,}860}$$

The sampling probabilities and weights are equivalent to those of a simple random sample. The weighting equation shown in (6) above will appropriately weight the entire sample.

Student Nurse Sample

The required sample for nursing students was 2,000 juniors and seniors from colleges across the U.S. with accredited nursing programs leading to a bachelors degree in nursing.[2]

Sampling Frame of Student Nurses. According to the *1990-1991 Enrollment & Graduations in Baccalaureate & Graduate Programs in Nursing* (American Association of Colleges of Nursing 1991), in the Fall of 1990 there were 616 generic bachelors programs with 37,613 full-time junior/senior students.

Sampling Strategy for Student Nurses. As with the registered nurses, a self-weighted sample of student nurses was required. This was more difficult with the students, however, since college nursing directors have to approve participation and data collection for the study. This may result in a non-random sample within colleges, given that participation is voluntary.

Sampling Procedures for Student Nurses. The following steps were taken to identify the sample.

1. *Determine size of mailout sample.* In determining the size of the mailout student sample, a 50 percent return rate was assumed. With a desired final sample of 2,000 completed surveys, the following calculation was made:

$$\frac{2{,}000}{.50} = 4{,}000 \text{ (}\textit{Required Mailout Sample}\text{)}$$

2. *Determine the number of students to select.* Deans of Schools of Nursing with accredited Bachelors' programs were sent a package requesting the school's participation in the study. They were asked to return a short survey indicating: 1) whether they would agree to have their students participate; 2) the number of junior and senior students in their program, and; 3) the beginning and ending date for classes in the upcoming semester. No participating college was expected to have less than 25 student nurses

[2] The ANC currently accepts only BSNs or those working towards a Bachelors' Degree. Therefore, AD and diploma programs were excluded from the sampling frame.

within the sampling frame. Therefore, the number of student nurses per school was set at 25, yielding a requirement for 160 schools to be sampled (4000/25).

3. *Determine the schools from which students would be selected.* The primary sampling units (i.e., nursing schools) were ordered from largest to smallest using the population data provided by the participating schools. A random "starting point" from 1 to $S_t/160$ (S_t = Total number of student nurses) was selected. Using the cumulative frequency distribution of the ordered list of colleges, they were then selected in the same manner described for registered nurses. That is, beginning with the starting point, schools were included which correspond to the take-every $S_t/160$ student.

4. We assumed that nurses in schools participating were like the nurses in colleges not participating in the project, thus producing a self-weighting sample. Sample probabilities were:

$$\frac{P_i}{\frac{E}{\sum_{i=1} P_i /160}} * \frac{25}{P_i}$$

6. Weights for the student nurses are the inverse of sample probabilities. That is:

$$\frac{\frac{E}{\Sigma\ P_i}}{25*160} = \textit{Weight}$$

Survey Development

Meetings were held between members of the project staff and representatives of the Army Nurse Corps (ANC), United States Army Recruiting Command (USAREC), and the Army Research Institute (ARI) to discuss the content of the survey. Project goals were reiterated and

confirmed and suggestions for areas of questioning were accepted. Items were then assembled to cover the dimensions of interest. In some cases, these were abstracted from prior surveys of nurses. Other items had to be constructed to meet the aims of this project. Although many questions were the same for both RNs and students, there were some were specific to each questionnaire.

The entire bank of survey items was submitted for review by ANC personnel. A wide range of comments and suggestions was received. Where there appeared to be conflict between reviewers, discussions were held to resolve any apparent differences. Two draft surveys were then assembled.

The Survey of Registered Nurses was pre-tested at two Washington-area hospitals, with a total of nine nurses taking part. The students' survey was completed by a group of nine student nurses from two area schools. In both cases, administration was done in groups, with individual time-to-complete noted. Participants' comments were then solicited concerning areas of confusion in terms of instructions, question wording, skip patterns, etc. All such comments were noted.

The results of the pre-tests were compiled along with suggestions for amending the questionnaires. These were reviewed by the sponsor, and agreed-to revisions were incorporated into the final survey instruments. These were printed in the format required for optical scanning. The surveys are presented in the Appendix to this report.

Survey Distribution

Survey of Registered Nurses

After drawing the sample following the procedures outlined above, mailing labels were produced, each of which included a sequentially assigned ID number. Mailing permit and Business Reply indicia were obtained by the sponsor, and sufficient envelopes were printed to accommodate the mailing of the advance and reminder letters (# 10), as well as the surveys themselves (9 x 12).

Advance letters were sent to sample members informing them that they had been selected to participate. The nature and purpose of the survey were explained, and their cooperation solicited. The actual questionnaires were sent approximately two weeks later along with a cover letter that reiterated the advance information. Both of the advance and cover letter were over the signature of the Chief of the Army Nurse Corps (See Appendix). As survey packets were assembled, special care was taken to ensure that the litho code on the instrument itself matched the case ID number as entered into the address database and printed on the mailing label.

Reminder letters were sent to all nonrespondents approximately one month after survey distribution (see Appendix). The importance of the survey was reiterated, and those who may have already responded thanked. An 800 number was provided for those with questions or who may have needed another copy of the survey itself.[3]

Delays in obtaining the RN lists from California and Ohio would have meant putting off the entire distribution process until after the holiday season. Therefore, the mailing took place in two phases, as follows:

	CT, FL, KS, ND, NC, NJ, PA, WI	CA & OH
Advance Letter	10/25/93	1/10/94
Surveys	11/15/93	1/24/94
Reminder Letters	12/27/93	2/21/94

Survey of Nursing Students

Some two years prior to the start of the current project, mailing labels for 616 college and university Deans of Nursing were obtained from the American Association of Schools of Nursing. Letters were sent to each, along with a short questionnaire asking if they would participate, how many junior and senior students they had enrolled, and when classes began and ended the coming semester. Of the 306 schools that responded, 243 said that they would be willing to take part.

At the start of the current project, a self-weighting sample of 176 schools was selected from the list of those that had earlier agreed to participate. Given the long delay in implementing

[3] Approximately 87 calls were received on the toll-free number. A total of 50 replacement surveys were sent out in response to these inquiries.

the survey, these schools were sent another letter reminding them of the purpose of the project and requesting that they confirm their willingness to take part (see Appendix). Approximately one month later, telephone follow-ups were made to all schools lacking a response. The final disposition of these efforts was as follows:

	Number	Agree	Decline	Unable to Contact
Letters Sent	176	--	--	--
Survey Returned	113	88	25	--
Called	63	24	5	34
Total	176	112	30	34

During the calling phase of this effort, the decision was made to send the letter and short questionnaire to an additional 30 schools. We hoped that, in combination with the ongoing contacts, this would enable us to reach the goal of 160 participating schools. The results from this supplemental sample were as follows:

	Number	Agree	Decline	Unable to Contact
Letters Sent	30	--	--	--
Survey Returned	16	14	2	--
Called	14	4	2	8
Total	30	18	4	8

Efforts to reach the 42 schools that, after repeated calls, could not be contacted had to be terminated due to time constraints. Because each of these institutions had already indicated a willingness to participate, we decided to assume (at least for the purposes of the first mailing) that this status had not changed. As described below, the instructions for selecting individual students for the sample, sent out two weeks prior to the questionnaires themselves, included an 800 number that school representatives could call with questions or problems. This provided a simple way for any of the 42 schools we had been unable to contact to let us know if they did not wish to participate.

Each of the schools was offered the option of having an outside administrator or their own personnel administer the survey. Only 13 of those that agreed to participate indicated that they would need outside assistance. Cooperation was solicited from the U.S. Army Military Entrance Processing Command (MEPCOM) and the Reserve Officer Training Command (ROTC), whose personnel were scheduled to administer the surveys at 3 and 12 schools respectively.

Advance letters were sent to the 172 schools in the sample on October 28, 1993. Included was a set of instructions for randomly selecting the students who would participate (see Appendix). The surveys were packaged, along with cover letters from the Chief of the Army Nurse Corps, in groups of 25 for distribution to each school (see Appendix). On November 8th and 9th, these were sent along with an additional set of instructions for administration, a cover letter from the project director, and a postage-paid envelope for returning the completed questionnaires. A file containing the survey numbers sent to each school was created.

Because of the delays encountered in distribution, a number of schools indicated that they would be unable to secure the time required of students until the start of the new semester in early 1994. With the importance of receiving data from as many of the schools as possible, they were simply told to do the best they could, and that returns would be welcomed at that time. On January 7, 1994 a letter was sent to all schools that had not responded indicating that their input would still be appreciated. The 800 number was provided for those with questions or problems.

Survey Processing

As completed surveys were received, they were checked for proper completion. Any that were found to be problematic (e.g., marked too light, ink used to complete) were corrected to ensure proper processing. They were then scanned in batches and stored in file folders in anticipation of coding of open-ended responses. When the cut-off for returns was met, frequencies were run to determine the number of times "other" was marked for the 19 items that had this option. Respondents were asked to specify the "other" in the space provided. It was decided in advance that content analyses of these responses would be conducted when five percent or more of the RNs selected this option. The open-ended remarks section at the end of the survey also required content analysis. The coding scheme was developed based on a random sample of 50 questionnaires. The categories derived were refined as the coding continued, and,

in the case of medically-related information (e.g., type of certification, specialization), were further condensed through consultation with ANC personnel.

Response Rate

Registered Nurses

Table 2 shows the number of pieces of mail returned as undeliverable. As might be expected, there were some inconsistencies in this regard. That is, in some cases the advance letter was returned (with or without a new address) but the corresponding survey was not. In other cases the reverse was true, while in some instances both pieces were returned. In total, 452 respondents had one or more of the pieces returned. This represents slightly over four percent of the entire sample, suggesting that the state RN lists were a very good source for current address information.

Table 2
RN Advance Letters and Surveys Returned as Undeliverable

Letter	Survey	Address	Number
x			60
	x		40
x	x		164
x		x	21
	x	x	12
x	x	x	155
	Letters and/or surveys without new address = 264	Letters and/or surveys with new address = 188	Total Returned = 452
(Reminders)			98

A file was maintained as returns with new address information were received. An additional mailing was then undertaken for these individuals. When their original survey (number = case ID) was returned, it was sent again on the second attempt to contact. A new ID number was assigned in those cases where the original survey was not returned, so that the case ID and survey number were the same.

As seen in Table 3, the goal of 3,000 respondents was not achieved. Further, although the total number of responses was fairly close to the number desired, 48% of those who returned completed surveys were over the age of 45 and thus not members of the prime recruiting pool. (Note that RNs not currently working in the field are still potential ANC recruits, therefore they were asked to complete the bulk of the survey (see Appendix).)

Table 3
Survey Response by Year of Birth and RN Employment Status

Year of Birth	Not Working as a Nurse	Working as a Nurse	Total
0000-1948 Total % Row %	354 11.6 24.3	1,105 36.4 75.7	1459 48.0 100
1948-1972 Total % Row %	126 4.2 7.0	1,454 47.8 92.0	1,580 52.0 100
Total Column %	480 15.8	2,559 84.2	3,039 100%

Why the response rate was so low can only be the subject of conjecture. Widely recommended procedures were employed to ensure an adequate response, including: a) sending an advance letter outlining the reason for and importance of the study; b) reiterating this information in a letter accompanying the questionnaire itself; c) having both letters appear over the signature of a respected individual (e.g., the Chief of the Army Nurse Corps), and; 4) sending a follow-up letter to nonrespondents within weeks of questionnaire distribution. In addition, participants were provided an 800 number to call should they have questions or need another copy of the survey. Other methods for increasing response rates (e.g., multiple follow-up letters, phone calls to nonrespondents) were impossible to carry out in this case due to restricted time and funding.

Among the possible reasons why the response rate was so much lower than that obtained in the 1988 Survey of Registered Nurses are the following: 1) This survey was considerably longer, covering a wide-range of issues not addressed in the earlier project. 2) Mailing took place

relatively near the end-of-the-year holidays, which was the subject of some concern but could not be avoided given the timeframe for the study. 3) The source of this survey was the U.S. Army, rather than Department of Health and Human Services, Public Health Service. Although only anecdotal evidence can be brought to bear on this issue, the possibility is nonetheless real that negative feelings about the military meant that some portion of the sample was unwilling to respond. 4) Considerably more time and expense was devoted to increasing the response rate to the 1988 survey, including multiple follow-up mailings and phone calls.

Whatever the cause, the low response rate requires that adjustments be made to the weighting plan described earlier. This is necessary to enable us to generalize from the results of this study to the nurse population as a whole.

Weighting. Had the desired number of "eligible" nurses responded, the sample would have been self-weighting. Due to the poor response, however, adjustments were required to make the sample representative of the population of RNs. As a first step, the sample for this survey was compared with that from the Public Health Service's 1988 national survey of registered nurses.[4] With a response rate of just over 80% and a final sample size of 33,196, the results from this study can be treated as true population values. Chi-square tests were run to determine if the sample from the present study differed significantly from the population in terms of gender, age, race/ethnicity, and marital status. It did in every case.

Therefore, using Iterative Proportional Fitting (IPF), the sample was redistributed so that the marginals of the four-way distribution corresponded exactly to the population. Two sets of weights were derived; one results in our sample mirroring the entire population of RNs on these key dimensions (CASEWGT), while the second generates a fit to the 45 year-old and younger segment of that population (CASEWGT2). Note that one major advantage to IPF is that it minimizes changes to the sample (using a Chi-square criterion) which means that the weights themselves are also minimized.

Nursing Students

[4] Moses, E. B. (1990). *The Registered Nurse population: Findings from the National Sample Survey of Registered Nurses, March 1988.* Washington, DC: U.S. Department of Health and Human Services, Public Health Service.

Survey packets were sent to 172 schools across the country. As mentioned previously, despite efforts to contact all of the institutions included in the sample, 42 schools could not be reached to reaffirm their willingness to participate. Based on their earlier consent, however, they were included in the mailout sample. The return rate for this effort was as follows:

	Responded	No Response	Total
Agreed to participate	92	38	130
Unable to contact	22	20	42
Total	114	58	172

Responses were received from 114 of the 172 schools in the mailout sample, yielding a school response rate of 66.3%. Note that not all schools were able to gather responses from the number of students requested (25). In fact, the total number of completed questionnaires was 1,651, yielding an average of 14.5 surveys per school. This final total falls short of the goal (2,000), and represents a response rate of 38.4% of all surveys sent out (50.8 when the schools that agreed to participate are used as the base). Table 4 provides a breakdown of the geographical location of the schools and students in the final sample. This is compared with projected 1995 population figures for these same areas. As indicated, the sample somewhat overrepresents the Mid-Atlantic and West North Central areas of the country, with the Pacific region most dramatically underrepresented. The difference in percentages for the other regions are relatively minor.

Table 4
Geographic Dispersion of Schools/Respondents
U.S. Army Survey of Nursing Students

Region[1]	# of Schools	# of Respondents	% of Respondents	% of Population[2]	+/-
New England	7	110	6.7	5.2	+1.5
Mid-Atlantic	25	229	20.5	14.6	+5.9
East North Central	21	285	17.3	16.2	+1.1
West North Central	11	187	11.3	6.9	+4.4
South Atlantic	16	265	16.1	18.1	-2.0
East South Central	13	150	9.1	6.2	+2.9
West South Central	8	125	7.6	11.3	-3.7
Mountain	7	93	5.6	5.8	-0.2
Pacific	6	97	5.9	15.8	-9.9
Total	114	1,651	100.00	100.0	0.0

[1] New England includes ME, NH, VT, MA, RI, CT. Mid-Atlantic includes NY, NJ, PA. East North Central includes OH, IN, IL, MI, WI. West North Central includes MN, IA, MO, ND, SD, NE, KS. South Atlantic includes: DE, MD, DC, VA, WV, NC, SC, GA, FL. East South Central includes: KY, TN, AL, MS. West South Central includes: AR,LA, OK, TX. Mountain includes: MT, ID, WY, CO, NM, AZ, UT, NV. Pacific includes: WA, OR, CA, AK, HI.

[2] Projected population, 1995. Source: U.S. Department of Commerce (1990). *Statistical Abstract of the United States*. Washington, DC: U.S. Government Printing Office.

Chapter 3

Results

Survey of Registered Nurses

Registered nurses who are under the age of 45 are the primary recruiting pool for the Army Nurse Corps. Although the opinions of those outside this age range may be of interest in other contexts, they are unlikely to have an impact on issues surrounding the decision to join the military. Thus, the data presented below have been weighted (as described earlier) to reflect the 45 year-old and younger RN population. The application of these weights results in a sample size of 1,511.[1]

Background

As would be expected, the sample of civilian nurses was predominately (96.0%) female. This closely mirrors the status of the United States civilian nurse population which is 96.5% female according to Rosenfeld (1989). Also consistent with prior findings is the racial/ethnic makeup of the sample, which was preponderantly white (91.8%). With the under-45 weights applied, the mean age of RNs in the sample was 34.44 years.

The bulk of the respondents were married (72%), with the next largest group being those who never have been married (18%). Over a third of the respondents had no children at home (39%), while 20% had only children under the age of six living with them, 28% had children all older than six, and the remainder (14%) had a mix of the two.

Education

Nearly 12% of the sample reported that they are currently attending school part-time, with an additional 2% enrolled full-time. As can be seen in Table N-1, just over 40% of the sample would not be eligible for the active duty ANC given that they do not have at least a Bachelors degree. However, because RNs with an associate degree or three-year diploma can qualify for the Reserve, the entire sample is of interest. The number of respondents with less than a BSN increases to nearly 58% when the degree held if first registered is used as the criterion. This

[1] The slight reduction in sample size that results when the weights are applied is due to the fact that the weights were derived from categorical data. Age 45 fell into the category of 45-49 years, thus some granularity was introduced.

reflects the fact that a quarter of those who became RNs with a 2-year degree and just under a third of those who first registered with a 3-year degree have since gone on to complete the requirements for a Bachelors (or greater).

Table N-1
Degree When First Registered by Highest Degree
Registered Nurses

		Degree when Registered (NQ9)			
Highest Degree (NQ12)		2-year	3-year	4-year	Total
2-year	Number	364	0	0	364
	Row %	73.24	0.00	0.0	(24.85)
3-year	Number	0	240	0	240
	Row %	0.00	68.57	0.0	(16.38)
4-year	Number	102	85	521	708
	Row %	20.52	24.29	84.30	(48.33)
Masters	Number	18	18	81	117
	Row %	3.62	5.14	13.11	(8.0)
PhD	Number	1	1	7	9
	Row %	0.20	0.29	1.13	(0.61)
Other	Number	12	6	9	27
	Row %	2.41	1.71	1.46	(1.84)
Total	Number	497	350	618	1,465
	Row %	33.92	23.89	42.18	

Table N-1 also clearly demonstrates that ones initial degree has a substantial impact on the level of education eventually obtained. That is, although some 16% of those whose first degree was a BS went on to obtain a Master's or PhD, only about 6% of the 2/3-year degree nurses were able to achieve this educational level.

Clearly, a major obstacle to continuing education is money. The escalating costs of tuition and other fees, particularly at private universities, are a constant source of attention in the media. Among the RNs in this sample who were attending school at the time of the survey, 44% were footing at least part of the bill themselves, while another 37% were receiving some assistance from their employers. Table N-2 reflects the fact that few

Table N-2
Source of Funding for Education--Registered Nurses

How funding education (NQ8C)	Frequency	Percent (of responses)
Personal	139	43.71
Employer	118	37.11
Non-Gvt. Schlrshp/Loan	20	6.29
State Scholarship	14	4.40
Federal Loan	13	4.09
Federal Scholarship	7	2.20
University	6	1.89
Other	1	0.31
Total	318	100.00

employers are willing/able to provide assistance for an individual to return to school full-time. Whereas nearly two-thirds of those attending classes on a part-time basis receive help from their employers, less than one-quarter of those going full-time get such benefits. This issue will reemerge when work satisfaction is examined below.

Changes in the degree status at the time of first registration among the RN sample reflect national trends in this regard. Figure 1 provides a snapshot of this situation, as respondents were grouped into five-year categories based on when they received their first nursing degree, and this was mapped against the type of degree they obtained. As is clear from this figure, the percentage of those first achieving 3-year degrees has dropped dramatically over the past two decades, with concomitant gains in 2- and 4-year diplomas. It is this trend, in part, that has allowed the ANC to maintain their active duty BSN requirement while also sustaining adequate personpower levels.

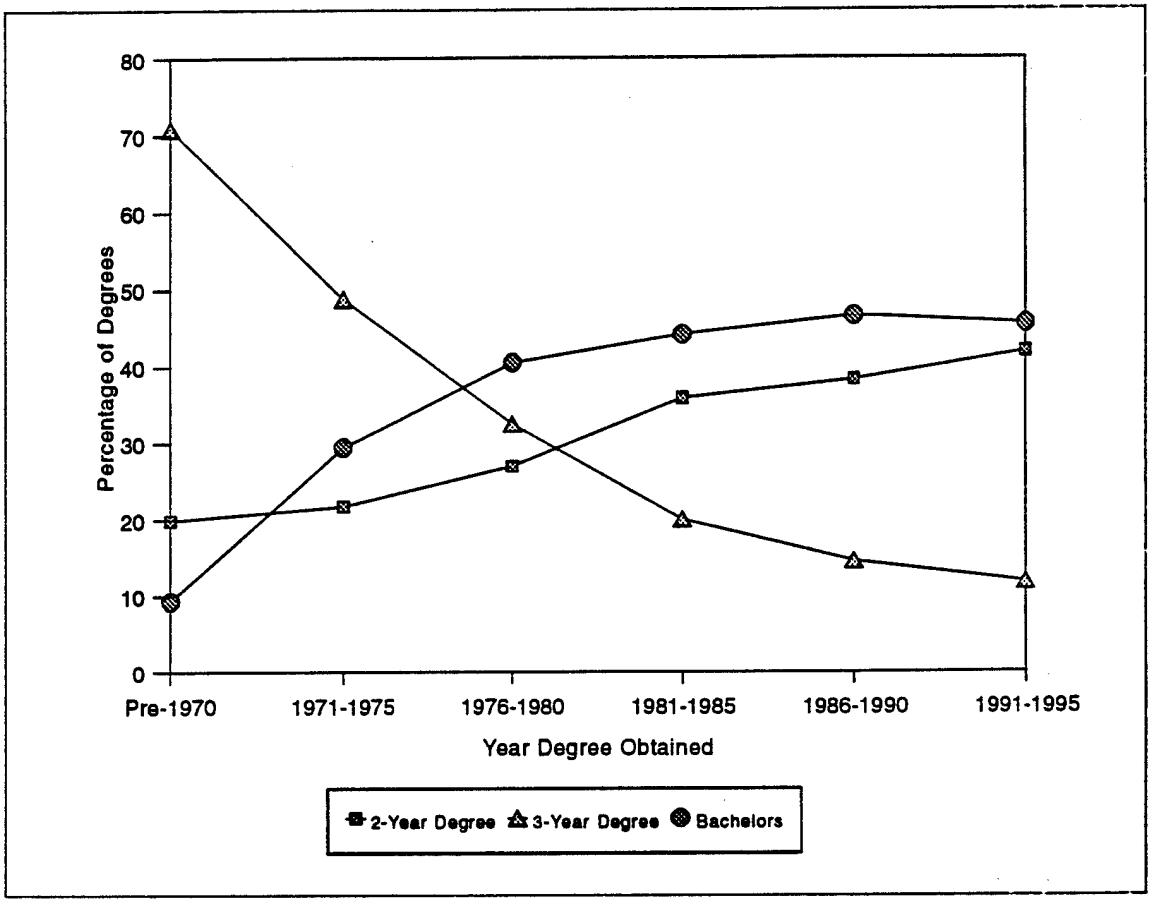


Figure 1. First Degree Obtained by Year Received

Respondents were also asked if they had achieved professional certification in any specialty within the field of nursing. Some 259, or 17%, of the sample said they had. Table N-3 lists these areas, indicating that the most popular specialties were critical care (15%), medical/surgical (9%), anesthesiology (6%), and psychiatric/mental health nursing (6%).

Table N-3
Professional Certification Obtained
by Registered Nurses

Professional Certification (NQ15)	Frequency	Percent (of responses)
Critical Care	40	15.44
Medical/Surgical	24	9.27
Nurse Anesthetist	16	6.18
Psychiatric/Mental Health	15	5.79
Ob-Gyn Nurse Practitioner	14	5.40
Pediatric Nurse Practitioner	12	4.63
Family Nurse Practitioner	10	3.86
Community Health	6	2.32
Gerontological	5	1.93
Adult Nurse Practitioner	4	1.54
School Nurse Practitioner	4	1.55
Neonatal	3	1.16
Child/Adolescent	2	0.77
Gerontological Nurse Practitioner	1	0.39
Midwife	0	0.00
Other	103	39.77
Total	259	100.00

Motivational Factors in Selecting Nursing

Respondents were asked to indicate the most important reason behind their decision to become a nurse. These data are summarized in Table N-4. As might be expected, the most cited motivation was to care for and help others (53%). Only two other responses gathered double-digit support, these being the range of practice opportunities (15%) and job security (10%).

Table N-4
Most Important Reason for Selecting Nursing--Registered Nurses

Most Important Reason for Becoming a Nurse (NQ16)	Frequency	Percent (of responses)
Care for/help people	786	52.51
Range of practice opportunities	221	14.76
Job security	153	10.22
Interesting job	120	8.02
Hands-on profession	87	5.81
Salary	39	2.61
Independence	31	2.07
Professional respect	30	2.00
Decision-making authority	7	0.47
Leadership experience	3	0.20
Technical experience	2	0.13
Other	18	1.20
Total	1,497	100.00

Approximately 44% of the respondents were in other jobs before turning to the nursing profession. They were asked to indicate what advantages nursing provided over their previous employment. As shown in Table N-5, the most cited benefits included better salary (20%), a more rewarding occupation (18%), more meaningful work (15%), and a more interesting career (14%).

Table N-5
Advantages of Nursing Over Previous Job
Registered Nurses Who Came to the Field From Another Profession

RN advantage over previous job (NQ17)	Frequency	Percent (of responses)
Better salary	314	20.84
More rewarding	273	18.11
More meaningful	227	15.06
More interesting	207	13.74
Better benefits	123	8.16
More autonomy	121	8.03
More involvement	103	6.83
More authority	82	5.44
Better work schedule	34	2.26
Other	23	1.53
Total	1,507	100.00

Finally, survey respondents were asked how others influenced their decision to become a nurse (Table N-6). The influencers cited most often were parents, friends, siblings, and nursing instructors. Of these, parents and nursing instructors were singled out most often as positive influences, along with "others" and spouses. Counselors received the most negative citations (9%), although they only accounted for about 9% of the responses overall.

Table N-6
Positive, Neutral, and Negative Influences
on the Decision to Enter Nursing--Registered Nurses

Influence (NQ18)	% of citations	% positive (of those citing)	% neutral (of those citing)	% negative (of those citing)
Parents	1400 12.30	1105 78.93	237 16.93	58 4.14
Friends	1281 11.26	741 57.85	504 39.34	36 2.81
Sibling	1114 9.79	517 46.41	572 51.35	25 2.24
Nursing Instructor	1061 9.33	686 64.66	330 31.10	45 4.24
Counselor	1002 8.81	236 23.55	674 67.27	92 9.18
Teacher	952 8.37	183 19.22	728 76.47	41 4.31
Media	891 7.83	265 29.74	582 65.32	44 4.94
College Instructor	804 7.07	184 22.89	584 72.64	36 4.48
Family Tradition	758 6.66	394 51.98	346 45.65	18 2.37
Spouse/Partner	611 5.37	415 67.92	166 27.17	30 4.91
Hospital Recruiter	527 4.63	181 34.35	330 62.62	16 3.04
Military Recruiter	348 3.06	47 13.51	290 83.33	11 3.16
Children	285 2.50	110 38.60	168 58.95	7 2.46
Other	344 3.02	270 78.49	71 20.64	3 0.87

Work Background

Approximately 93% of the sample was working in the nursing field at the time of the survey. Of these, 70% were working full-time, 30% part-time. Respondents were asked a variety of questions about their current work status, and these data are summarized below.

Just over 71% of the nurses in the sample were working in a hospital at the time of the survey (Table N-7). The only other large concentrations were in public/community health settings (9%), outpatient facilities (7%), and nursing homes (4%). Among those working in a hospital, intensive care (25%) and specialty bed units (23%) were the most frequently mentioned hospital units of employment (Table N-8). General bed units (12%), operating rooms (8%), and emergency departments (8%) were also cited with some frequency.

Table N-7
Employment Setting of Registered Nurses

Employment setting (NQ25)	Frequency	Percent
Hospital	991	71.14
Public/community health setting	123	8.83
Outpatient facility	100	7.18
Nursing home/extended care	62	4.45
Nursing education	31	2.22
Employment health service	16	1.15
Agency	11	0.79
Student health service	11	0.79
Self-employed	7	0.50
Prison or jail	6	0.43
Other	35	2.52
Total	1,393	100.00

Table N-8
Unit Where Employed
Registered Nurses Working In Hospitals

Hospital setting (NQ27a)	Frequency	Percent
Intensive care	235	24.76
Specialty bed unit	219	23.08
General bed unit	110	11.59
Operating room	74	7.80
Emergency department	73	7.69
Pediatrics	42	4.43
Obstetrics	32	3.37
Labor/delivery room	30	3.16
Outpatient department	30	3.16
Recovery room	25	2.63
Home health care	10	1.05
Nursery	9	0.95
Hospice unit	0	0.00
Other type of unit	11	1.16
No specific area assigned	49	5.16
Total	1,373	100.00

As indicated in Table N-9, the majority of respondents indicated that their job title was staff nurse (54%). The distribution among the other responses was fairly even, with the exception of the 9% who indicated that they were charge nurses.

The fact that a large majority of the RNs in the sample were working full-time is reflected in the number of hours put in per week. Half of the sample indicated that they typically worked between 31 and 40 hours (Table N-10), while nearly a quarter said that they were somewhat more than "full-time." Respondents were also asked to provide a breakdown of how their time was generally spent (Table N-11). As might be expected, patient care was

Table N-9
Position Title--Registered Nurses

Position title (NQ26)	Frequency	Percent
Staff nurse	754	54.36
Charge nurse	123	8.87
Head/Assistant head nurse	53	3.82
Administrator	51	3.68
Supervisor/Asst. supervisor	47	3.39
Nurse practitioner	32	2.31
In-service education director	32	2.31
Dean of nurse education	30	2.16
Director nursing service	28	2.02
Public health nurse	27	1.95
Nurse clinician	24	1.73
Nurse coordinator	22	1.59
Patient care coordinator	21	1.51
School nurse	19	1.37
Team Leader	18	1.30
Clinical nurse specialist	18	1.30
Registered nurse anesthetist	15	1.08
Consultant	12	0.86
Private duty nurse	9	0.65
Researcher	5	0.36
Nurse midwife	0	0.00
Other	47	3.38
Total	1,387	100.00

the predominant activity, with 55% of the RNs saying that this occupied 75 to 100% of their time. Very *little* time was spent doing research or on administrative activities. These results are generally in line with the position titles given earlier.

Table N-10
Average Hours Worked Per Week--Registered Nurses

Hours worked per week (NQ23)	Frequency	Percent
Less than 10	45	3.22
11-20	118	8.44
21-30	195	13.95
31-40	718	51.36
41-50	283	20.24
51-60	16	1.14
61 or more	23	1.65
Total	1,398	100.00

Table N-11
Percent of Time Spent on Activities Each Week--Registered Nurses

Activity (NQ24)	0-24%	25-49%	50-74%	75-100%	Total
Administration	1177 83.59	106 7.53	79 5.61	46 3.27	1,408 100.00
Consultation	978 69.46	294 20.88	94 6.68	42 2.98	1,408 100.00
Patient Care	290 20.60	120 8.52	227 16.12	771 54.76	1,408 100.00
Research	1,333 94.67	60 4.26	9 0.64	6 0.43	1,408 100.00
Supervision	934 66.36	271 19.23	122 8.66	81 5.75	1,408 100.00
Teaching	1,138 80.82	186 13.21	55 3.91	29 2.06	1,408 100.00
Other	1,316 93.47	42 2.98	26 1.85	24 1.70	1,408 100.00

In recognition of the importance of registered nurses to the health care system and a long history of generally inadequate compensation levels, salaries in the field have been on the rise in recent years. For instance, in 1993, the annual base pay for a nurse working full-time in acute

care was $39,540, nearly $10,000 over the mean of $30,310 posted just four years earlier (Lippman, 1993). This rise is reflected in the salary data provided by survey respondents, 55% of whom indicated that their gross salary was over $35,000 in 1992. Among full-time nurses, a scant six percent said they earned $25,000 or less, with the remaining 39% making between $25-35,000 (Table N-12).

Table N-12
1992 Gross Income--Registered Nurses

Income (NQ35)	Full-time	Part-time
$5,000 or less	1 0.10	21 5.30
$5,001 - $10,000	0 0.00	28 7.07
$10,001 - $15,000	4 .41	46 11.62
$15,001 - $20,000	9 0.93	63 15.91
$20,001 - $25,000	49 5.07	76 19.19
$25,001 - $30,000	133 13.77	65 16.41
$30,001 - $35,000	242 25.05	45 11.36
35,001 - $40,000	215 22.26	30 7.57
40,001 - $45,000	139 14.39	10 2.52
$45,001 - $50,000	73 7.56	3 0.76
$50,001 - $55,000	40 4.14	3 0.76
$55,001 - $60,000	26 2.69	3 0.76
More than $60001	35 3.62	3 0.76
Total	966 100.00	396 100.00

Satisfaction with the Field

The registered nurse respondents were asked to indicate how satisfied they were with nursing as a profession. In examining these data, it should be kept in mind that this item was not answered by the 7% of respondents who were not working in the field, thus we would not anticipate high levels of dissatisfaction. In fact, as seen in Table N-13, fully 81% of these nurses said that they were satisfied or very satisfied with their occupation. Less than 1% were *very dissatisfied*, with less than 9% expressing any level of dissatisfaction. These data are mirrored by the fact that 28% percent of the respondents said they were looking for another job at the time of the survey, with only 4% of those working in the field seeking employment outside of nursing. Overall, then, nurses today seem relatively pleased with their chosen occupation.

Table N-13
Satisfaction With Nursing

Satisfaction with nursing (NQ33)	Frequency	Percent
Very satisfied	316	22.43
Satisfied	822	58.34
Neutral	149	10.57
Dissatisfied	112	7.95
Very dissatisfied	10	0.71
Total	1,409	100.00

This does not mean, of course, that RNs love all aspects of their jobs. Respondents to this survey were presented with a series of job dimensions. These included personal lifestyle factors, working conditions, professional issues, and educational concerns. They were asked to rate each dimension in terms of its importance to them, and their satisfaction with their current position in regard to that item. Table N-14 presents the results for respondents who said that a given feature was important or very important to them. For those respondents placing value on a dimension, the table shows the percentage who said they were currently dissatisfied or very dissatisfied with that particular aspect of their personal or work life. These data reflect the major professional and personal concerns of the nurses in the sample.

Table N-14
Percentage of Those Rating Each Job Dimension Important/Very Important
Who Also Said That They Were Dissatisfied or Very Dissatisfied With It

Dimension (NQ29, 30, 31, 32)	Percent
Amount of paper work	37.30
Opportunity to continue education funded by employer	33.66
Morale in work area	32.99
Acknowledgement/appreciation for job performance	30.20
Opportunity to attend specialty courses	28.61
Nurse supervisor abilities/support	28.53
Salary	22.92
Opportunity to gain continuing education units (CEUs)	22.23
Time for personal/family life	21.90
Nurse-doctor collaboration	20.23
Assigned patient load	19.55
Opportunity to make administrative decisions at work	18.58
Availability of child care	16.20
Preparation for current position (i.e., orientation)	15.37
Incentives/support to utilize, conduct, publish research	14.61
Flexibility of schedule	13.82
Adequacy of preceptorship program	13.36
Frequency of floating to other clinical units	12.31
Opportunity for supervisory/managerial experience	11.79
Quality of patient care	11.66
Opportunity to continue education funded by me	10.72
Number of hours at work each day	10.61
Authority to make patient-care decisions	9.92
Stable employment	9.46
Opportunity to work in clinical area or role of choice	9.30
Variety of nursing experiences available	7.74
Employment opportunities for spouse	6.06
Opportunity to serve others	2.30

A problem frequently cited in the ongoing debate over health care in the United States is the amount of paperwork required to maintain the system. It is fitting, then, that this should be the factor most frequently cited by the nurses who think it is important as being unsatisfactory. Some 37% of the respondents who said paperwork was important or very important, also said that they were dissatisfied or very dissatisfied with this aspect of their work.

Another problem area for these RNs was the availability of employee-provided funding for education. A third of those judging this dimension as important said they were not satisfied with their current status in this regard. A third of the respondents also expressed problems with morale in the work place, while 30% felt that there was a failure to acknowledge and/or appreciate good job performance. Other concerns were the apparent lack of opportunity to attend specialty courses and the degree of supervisor ability and support.

In fact, with the exception of the opportunity to serve others, all of the areas mentioned in the survey were judged negatively by a notable proportion of the sample. As discussed below, these data can be used by the ANC to structure programs and policies that will allow it to continue to attract qualified and dedicated RNs to the Army.

Military Experience

Approximately six percent of the survey respondents actually served in the military, with four percent still on Active Duty or Reserve status (Table N-15). Of those who have or are serving, nearly half were/are in the Army while a third joined the Air Force (Table N-16). These small numbers suggest that there is little effect on overall survey results based on respondents having had military service.

Perhaps reflecting declining generational trends in military service participation rates, the parents of these RNs were much more likely to have been in one of the Armed Forces than were their siblings (Tables N-17, N-18). While 57% of the respondents had a parent who served on Active Duty and three percent in the Reserve/Guard, only 26% had siblings who had served in either component. As seen in Table N-19, parents were more likely to have served in the Army (54% vs. 43%), while siblings were more often identified with the Air Force (19% vs. 14%) and the Marine Corps (12% vs. 6%). The impact of having family

Table N-15
Military Participation--Registered Nurses

Ever in the military (NQ39)	Frequency	Percent
No	1377	93.67
Served on Active Duty (not in now)	39	2.65
Served in Reserve (not in now)	4	0.27
Yes, Active Duty now (was in Reserve)	1	0.07
Yes, in Reserve now (was on Active Duty)	11	0.75
Yes, am now Active Duty	12	0.82
Yes, in Reserve	25	1.70
Yes, in National Guard	1	0.07
Total	1470	100.00

Table N-16
Branch of Service--Registered Nurses

Which branch (NQ39A)	Frequency	Percent
Army	44	48.35
Navy	15	16.48
Air Force	30	32.97
Marine Corps	2	2.20
Coast Guard	0	0.00
Total	91	100.00

Table N-17
Parental Military Participation--Registered Nurses

Parents ever serve (NQ50)	Frequency	Percent
No	586	39.89
Yes, Active Duty	839	57.12
Yes, Reserve	44	2.99
Total	1,469	100.00

Table N-18
Sibling Military Participation--Registered Nurses

Siblings ever serve (NQ51)	Frequency	Percent
No	1060	73.51
Yes	382	26.49
Total	1,442	100.00

Table N-19
Branch of Service, Parents and Siblings--Registered Nurses

Service parents/siblings served (NQ50B/51A)	Parents served	Siblings served
Army	505 54.54	194 43.40
Navy	226 24.41	111 24.83
Air Force	129 13.93	86 19.24
Marine Corps	56 6.05	52 11.63
Coast Guard	10 1.07	4 0.90
Total	926 100.00	447 100.00

members who served in the military will be examined below in conjunction with attitudes towards the Army and ANC.

The visibility of the ANC among the nurses in this sample was quite high, with 77% indicating that they had at least heard or read something about the Corps. As indicated in Table N-20, the most frequently cited source for information about the ANC was unsolicited direct mail (36%). Journal advertisements (17%), career/job fairs (11%), and school visits by recruiters (9%) were also popular avenues for obtaining information about Army nursing. Of the slightly over one-quarter of the sample (25.6%) who indicated that they had actually discussed joining the ANC, discussions with spouse/partners (22%), military

Table N-20
Source of Information on the ANC--Registered Nurses

Original source-info on ANC (NQ40A)	Frequency	Percent
Unsolicited direct mail	366	36.20
Journal advertisement	173	17.11
Career/job fair	112	11.08
School visit by Army Nurse recruiter	89	8.80
Family/friend	37	3.66
School visit--other service	31	3.06
Recruiter (at station)	22	2.18
Newspaper advertisement	18	1.78
Convention exhibit	13	1.29
Instructor/professor	11	1.09
ANC officer	10	0.99
School paper advertisement	10	0.99
Symposium/workshop	4	0.40
Prior service	0	0.00
Don't remember	95	9.40
Other	20	1.97
Total	1,011	100.00

recruiters (21%), mothers (15%), and fathers (13%) were the most frequently mentioned (Table N-21). As shown in Table N-22, reactions to the ANC and to recruiters were typically positive, with just under half of those who had talked to someone about the ANC coming away with positive or very positive impressions, and just over half rating the recruiter's approaches in a positive way.

Table N-21
Source of Conversation Regarding ANC--Registered Nurses

Discussed ANC with whom (NQ41A)	Frequency	Percent (of responses)
Spouse/partner	135	22.06
Military recruiter	130	21.24
Mother	93	15.20
Father	79	12.91
Civilian nurse/Army Reservist	54	8.82
Army nurse	35	5.72
Sibling	35	5.72
Counselor/teacher	19	3.10
Other	32	5.23
Total	612	100.00

Table N-22
Impression of ANC Based on Discussions
Recruiters and Others--Registered Nurses

Impressions of ANC (NQ41B/C)	Very Positive	Positive	Neutral	Negative	Very Negative	Total
Discussed--general	16 5.37	128 42.95	124 41.61	27 9.06	3 1.01	298 100.00
Discussed--recruiter	12 7.50	69 43.12	53 33.14	15 9.37	11 6.8774	160 100.00

A final indicator of military familiarity was obtained by asking respondents if they: a) know anyone who has served or is serving in the ANC, and/or; 2) have ever worked with RNs who served in the Army Reserve or National Guard. As shown in Table N-23, 36% of the sample indicated that they knew someone who had served in the ANC, while 48% have worked with nurses with Reserve/Guard service. This relatively high level of contact with Army nurses provides a good basis for the military impression(s) data discussed below.

Table N-23
Contact with ANC Personnel--Registered Nurses

Contact with ANC personnel (NQ44/45)	Yes	No	Total
Know people who served on AD in ANC	535 35.71	963 64.29	1498 100.00
Worked with nurse from Reserve/Guard	716 47.80	782 52.20	1498 100.00

Advertising

Table N-24 shows the number and percent of respondents who indicated that they had seen or heard joint military advertising (e.g., for all Services) and ANC advertising. In all, 95% indicated that they remember seeing or hearing advertisements for the Army, Navy, Air Force, and Marine Corps in some media. Given the differences in budgets, it is not surprising that this number is substantially lower for the ANC, with only 60% of the respondents remembering such ads.

The large difference in recall rates is not, however, reflected in the impact data. That is, although 35% more of the respondents remembered hearing/seeing joint service as compared to ANC ads, the percentage indicating that such messages moderately or greatly increased their interest was actually higher among the latter group. It is likely that the specific appeal of an ANC ad, directly aimed at RNs, would have a greater impact than a more general join-the-military approach.

Table N-24
Advertising Recall--Registered Nurses

See/hear Joint advertising? (NQ52) See/hear ANC advertising? (NQ53)	Joint	ANC
No	74 --	592 --
Yes, greatly increased interest	29 2.03	15 1.65
Yes, moderately increased interest	88 6.16	72 7.94
Yes, slightly increased interest	316 22.11	286 31.53
Yes, did not increase interest	996 69.70	534 58.88
Total	1,429 95.08	907 60.51

Table N-25 shows the media where ANC advertising was first heard or seen. Magazines (26%) and nursing journals (22%) were the source recalled by the largest percentage of respondents, with television (14%) and unsolicited brochures (14%) also cited by relative large numbers. It is interesting that TV garners 14% even without any ANC advertisements being aired. This provides some verification of the impact of other Army ads and "brand name" identity.

Table N-25
Source of Media Advertising--Registered Nurses

Media in which advertising seen (NQ53A)	Frequency	Percent
Magazines	284	25.70
Nursing journals	239	21.64
Television	157	14.21
Unsolicited brochures	156	14.12
Recruiter school visit	63	5.70
Career day	49	4.43
Army recruiter school visit	37	3.35
Recruiting letter	32	2.89
Other services school visit	26	2.35
Billboards	18	1.63
Newspapers	14	1.27
Literature from recruiter	13	1.18
Radio	11	0.99
School paper	8	0.72
Convention	6	0.54
Dinner/lunch seminar	2	0.18
Total	1,105	100.00

Finally, survey respondents were asked what type of radio and TV programs they watched/listened to most often. These results are shown in Tables N-26 and N-27. For television, news and special reports, along with situation comedies were selected by the largest

proportions of respondents, with music variety and game shows falling last. Radio preferences included rock, easy listening, and country music.

Table N-26
Most Watched Television Programs--Registered Nurses

Type of TV programs watched (NQ54)	Frequency	Percent
News/special reports	656	13.80
Situation comedies	649	13.66
Educational programs	420	8.84
Evening dramas	405	8.52
Movies on regular TV	391	8.23
Public television	364	7.67
Movies on pay/cable	325	6.84
Sports	288	6.06
Action/adventure	283	5.95
Daytime soaps	228	4.80
Music/variety	176	3.70
Game shows	149	3.13
Rarely watch TV	369	7.76
Other	49	1.04
Total	4,752	100.00

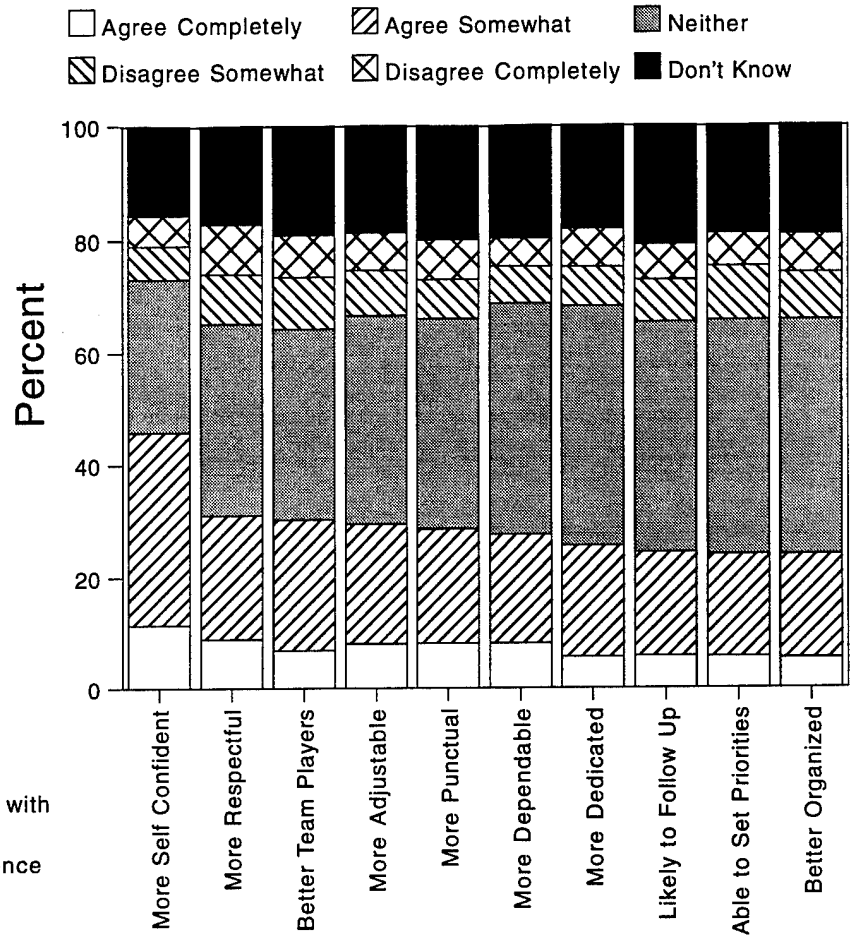
Table N-27
Most Listened to Radio--Registered Nurses

Type of Radio programs listened to (NQ55)	Frequency	Percent
Rock	590	23.94
Easy listening	531	21.55
Country/western	375	15.22
News/talk	220	8.93
Classical	179	7.26
Gospel/religious	155	6.29
Jazz	131	5.32
Soul	76	3.08
Rarely listen to Radio	82	3.33
Other	125	5.08
Total	2,464	100.00

Opinions about Army Nurses and the ANC

Respondents were given a series of work-related characteristics, and asked to indicate how much they agreed with the statement that nurses with Army experience had more of that characteristic than those with no military background. In each case, around 20% of the sample indicated that they didn't know enough to make such a judgment, while between 25-45% neither agreed nor disagreed (Figure 2). Overall, agreement was highest that nurses with Army experience are more self confident (46%), have respect for peers and coworkers (31%), are good team players (30%), are better able to adjust in the light of new circumstances (29%), are punctual (28%), and more dependable (28%). The lowest level of agreement concerned Army nurses being able to provide friendly service to those who may be impatient or indecisive (18%). Overall, levels of disagreement with the statements were low, suggesting that Army nurses are held in equal, if not higher esteem than those without military experience.

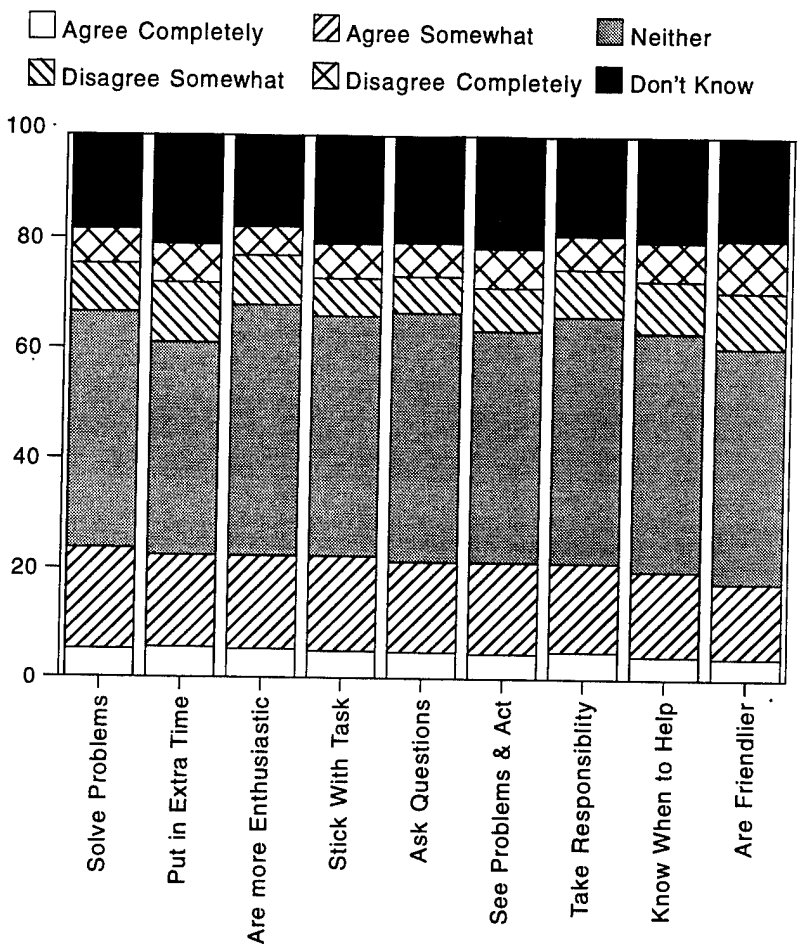
Another series of items presented the respondents with various attributes of military service. For each attribute, they were asked to indicate whether it would positively or negatively effect their decision to join. These results are presented in Figure 3.



Nurses with ANC experience are ...

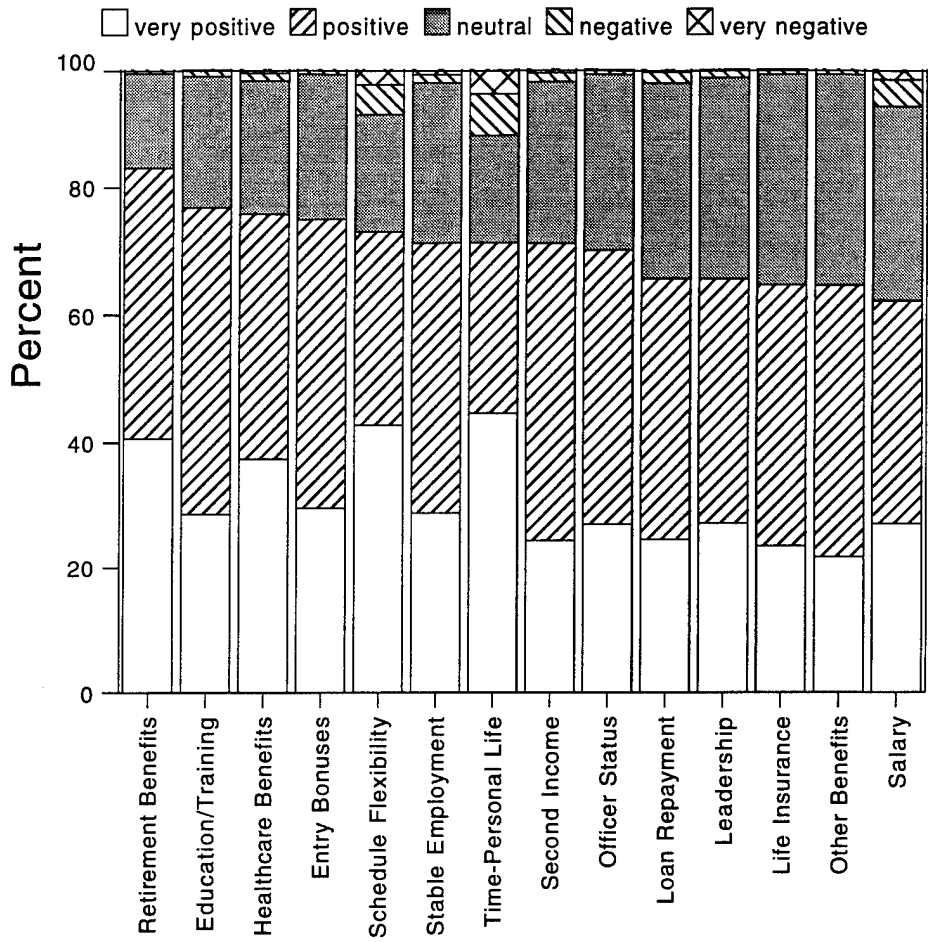
Don't Know	16	17	19	19	20	20	18	21	19	19
Disagree Completely	5	9	7	7	7	5	7	6	6	7
Disagree Somewhat	6	9	9	8	7	6	7	7	10	8
Neither	27	34	34	37	38	41	43	41	42	42
Agree Somewhat	34	22	23	21	20	19	20	19	18	19
Agree Completely	11	9	7	8	8	8	6	6	6	5

Figure 2. Comparison of Nurses With and Without ANC Experience -- Registered Nurses



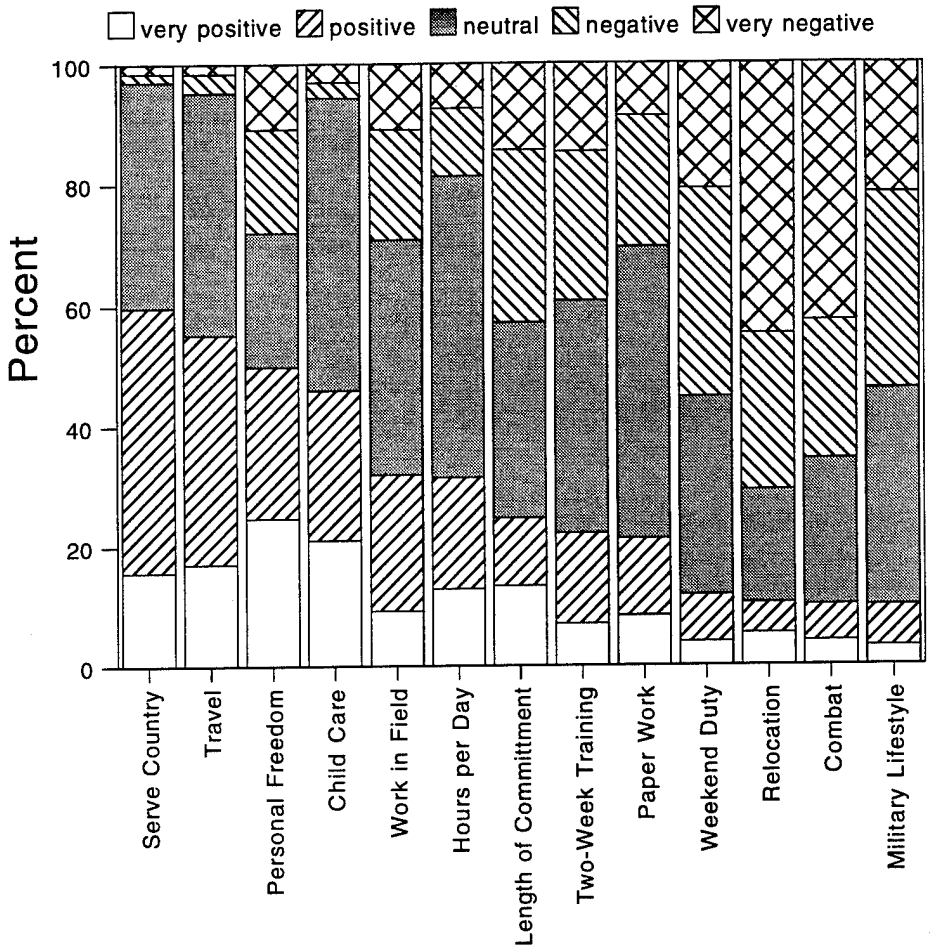
Don't Know	18	21	18	21	21	22	19	20	20
Disagree Completely	6	7	5	6	6	7	6	7	9
Disagree Somewhat	9	11	9	7	7	8	9	9	10
Neither	43	39	45	43	45	42	45	43	43
Agree Somewhat	18	17	17	17	16	17	16	16	14
Agree Completely	5	6	5	5	5	5	5	4	4

Figure 2. (Continued) Comparison of Nurses With and Without ANC Experience -- Registered Nurses



very negative	1	1	2	1	4	2	5	2	1	2	1	1	1	3
negative	1	1	1	1	5	1	7	1	1	2	1	1	1	4
neutral	15	21	21	23	19	25	17	26	28	31	32	33	33	31
positive	42	48	38	45	30	42	27	47	43	41	38	41	43	35
very positive	41	29	37	30	43	29	45	24	27	25	27	24	22	27

Figure 3. Evaluation of Attributes of Military Nursing -- Registered Nurses



very negative	1	2	11	3	11	7	14	15	9	21	45	43	22
negative	1	3	17	3	18	11	29	25	22	34	26	23	32
neutral	38	40	22	48	39	50	33	39	48	33	19	24	36
positive	44	38	25	25	23	19	11	15	13	8	5	6	7
very positive	16	17	25	21	9	13	13	7	8	4	5	4	3

Figure 3. (Continued) Evaluation of Attributes of Military Nursing -- Registered Nurses

Fully three-fourths of the sample indicated that retirement benefits, educational opportunities, health care benefits, and entry bonuses were positive or very positive attributes of military service. Over two-thirds rated schedule flexibility, stable employment, time for personal/family life, opportunity for second income, and officer status as positives.

On the flip side, more than half of the respondents rated the possibilities for relocation and combat, weekend duty (Reserve/Guard) and the military lifestyle as negative or very negative influences. Of the 27 aspects mentioned, 20 had higher positive ratings than negative. (The exceptions were relocation, possibility of combat, military lifestyle, weekend duty, length of commitment, two week (Reserve/Guard) training, and amount of paperwork.)

Respondents were asked to compare military and civilian nursing in terms of how rewarding they are thought to be. In all, 23% indicated that they though military nursing was somewhat or much more rewarding, 54% said they were the same, and 23% thought civilian nursing had the edge. A measure of "military contact" was developed by assigning points to each respondent based on whether they knew someone in the ANC or had a parent or sibling who served in the military. Thus, each person could "score" between 0 and 3 points. Table N-28 shows the comparison of military and civilian nursing data by this contact measure.

There is some indication that degree of contact is related to these evaluations. The percentage of those who said they weren't sure whether military or civilian nursing is more rewarding decreased as the contact measure increased. Furthermore, those with a two or three "military contacts" were more likely to respond in favor of military nursing.

Two questions were included in the survey regarding the relative compensation levels of civilian and military nurses. When asked to indicate which arena would provide the better starting pay, 47% of the respondents indicated that the Army would be better (moderately or substantially) in this regard (Table N-29). This edge increased dramatically when the frame of reference is an entire career. Over three quarters of those who answered this question felt that the Army would provide moderately or substantially higher total pay and allowances over the course of a 20-year career (Table N-30).

All in all, it appears that Army nursing is favorably viewed by those in the civilian sector. The biggest drawbacks seem to be those that would be expected; the possibility of being relocated and/or having to serve in a combat scenario, the length of the commitment, and the military lifestyle as viewed by these civilian RNs.

Table N-28
Evaluation of Military versus Civilian Nursing
with Military Contact Scale--Registered Nurses

Military vs. Civilian Nursing (NQ47)	Military Contact			
	0	1	2	3
Not sure	218 --	351 --	221 --	39 --
Military much more rewarding	3 2.52	9 3.56	14 6.01	5 8.20
Military somewhat more rewarding	25 21.0	36 14.23	47 20.17	14 22.95
Same	58 48.7	149 58.89	118 50.64	36 59.02
Civilian somewhat more rewarding	25 21.0	40 15.81	36 15.45	4 6.56
Civilian much more rewarding	8 6.72	19 7.51	18 7.72	2 3.28
Total	337	604	454	1395

Table N-29
Comparison of Military and Civilian Starting Pay
Registered Nurses

Compare military/civilian starting compensation (NQ48)	Frequency	Percent
Military substantially higher	89	11.45
Military moderately higher	278	35.78
About the same	188	24.20
Military moderately lower	156	20.08
Military substantially lower	66	8.49
Total	777	100.00

Table N-30
Evaluation of Military and Civilian Career Compensation
Registered Nurses

Compare lifetime civilian/ANC earnings (NQ49)	Frequency	Percent
Army substantially higher	242	31.72
Army moderately higher	338	44.30
About the same	107	14.02
Army moderately lower	48	6.29
Army substantially lower	28	3.67
Total	763	100.00

Propensity for Military Service

The following items were included in the survey to assess interest in joining the military:

For this section, mark the answer that best describes your opinions or feelings.

> Before Operation Desert Storm, I would have been interested in serving on active duty as a military nurse.
>
> Since Operation Desert Storm, I have been interested in serving on active duty as a military nurse.

Definitely Yes, Probably Yes, No Opinion, Probably Not, Definitely Not

Interest in the Reserve was assessed in the same manner. Tables N-31 and N-32 present these results. The totals along the bottom of the table show propensity to join the military prior to ODS/S, while those on the right apply to after the Persian Gulf War.

As might be expected given the age of the sample, the level of interest in joining in the Active Duty military was quite low, and even lower after ODS/S. The percentage of nurses saying they were definitely interested in military service prior to the war was 1.5; this was cut by more than half (0.65) when the time referent was post-ODS/S. A similar drop occurs among those saying they were probably interested in joining; 8.63% prior to, and 4.97% following ODS/S. The accompanying shrinkage in the "definitely yes" category

Table N-31
Active Duty Propensity Before and After ODS/S
Registered Nurses

		Opinion Before Desert Storm					
Opinion After Desert Storm (NQ42)		Definitely Yes	Probably Yes	No Opinion	Probably Not	Definitely Not	Total
Definitely Yes	Number	7	1	0	1	0	9
	Row %	77.78	11.11	0.00	11.11	0.00	100.00
	Column %	33.33	.85	0.00	0.22	0.00	0.66
Probably Yes	Number	3	55	6	4	0	68
	Row %	4.41	80.88	8.82	5.88	0.00	100.00
	Column %	14.29	46.61	4.69	0.86	0.00	4.97
No Opinion	Number	3	25	98	16	10	152
	Row %	1.97	16.45	64.47	10.53	6.58	100.00
	Column %	14.29	21.19	76.56	3.44	1.57	11.12
Probably No	Number	4	24	15	312	11	366
	Row %	1.09	6.56	4.10	85.25	3.01	100.00
	Column %	19.05	20.34	11.72	67.10	1.73	26.77
Definitely No	Number	4	13	9	132	614	772
	Row %	0.52	1.68	1.17	17.10	79.53	100.00
	Column %	19.05	11.02	7.03	28.39	96.69	56.47
Total	Number	21	118	128	465	635	1,367
		1.54	8.63	9.36	34.02	46.45	100.00

Table N-32
Reserve/Guard Propensity Before and After ODS/S
Registered Nurses

		Opinion Before Desert Storm					
Opinion After Desert Storm (NQ42)		Definitely Yes	Probably Yes	No Opinion	Probably No	Definitely No	Total
Definitely Yes	Number	14	4	0	1	0	19
	Row %	73.68	21.05	0.00	5.26	0.00	100.00
	Column %	40.00	1.65	0.00	0.23	0.00	1.39
Probably Yes	Number	7	114	5	9	3	138
	Row %	5.07	82.61	3.62	6.52	2.17	100.00
	Column %	20.00	46.91	3.03	2.10	0.61	10.10
No Opinion	Number	2	40	114	22	4	182
	Row %	1.10	21.98	62.64	12.09	2.20	100.00
	Column %	5.71	16.46	69.09	5.13	0.81	13.32
Probably No	Number	5	50	30	281	16	382
	Row %	1.31	13.09	7.85	73.56	4.19	100.00
	Column %	14.29	20.58	18.18	65.50	3.24	27.96
Definitely No	Number	7	35	16	116	471	645
	Row %	1.09	5.43	2.48	17.98	73.02	100.00
	Column %	20.00	14.40	9.70	27.04	95.34	47.22
Total	Number	35	243	165	429	494	1,366
		2.56	17.79	12.08	31.41	36.16	100.00

indicates that those who backed off "probably yes" headed in a negative, rather than more positive, direction.

The biggest losses and gains when comparing pre- and post-war assessments of propensity were in the probably and definitely not categories; the former went down over three and one-half percent, while the latter grew by ten percent. This reflects the large shift of those who indicated that they probably would *not* have been interested prior to ODS/S, but *definitely* were not interested afterwards.

Propensity for the Reserve was higher both before and after the war, but also experienced the shifts seen in the active duty data. That is, the percentages saying that they probably or definitely *were* interested drop along with those who say they probably were not interested. Conversely, there were gains in the no opinion and definitely not interested categories, with the largest gain (about 11%) being in the latter.

So, as would be expected with an older, more settled population, there is not much enthusiasm expressed among these nurses regarding actually joining the military. Furthermore, ODS/S appears to have tempered the small degree of interest that may have been there. However, it should be noted that if the post-ODS/S figures generalize to the population, over 5.5% of the nurses in the country have at least some interest in active duty military nursing, while 11.5% would consider the Reserve.

Survey of Nursing Students

The student survey paralleled the registered nurse version with several major exceptions:

- additional items were included regarding education funding;
- questions regarding work were omitted;
- students were asked to rate the importance of various job-related factors, however instead of indicating current level of satisfaction they were asked to indicate where they thought the various benefits and characteristics could best be satisfied (in a civilian or military context);
- students were not asked to evaluate nurses with ANC experience, and;
- an item was included in the student survey that asked them what position they would like to have immediately upon graduation, five years, and ten years after receiving their degree.

The final sample size for the United States Army Survey of Nursing Students was 1,652.

Background

Recent studies have found an increase in the number of men attending schools of nursing (National League for Nursing Press, 1993). This trend is reflected in the nursing student sample, where nearly 12% of the respondents were males (only 4% of the RN survey participants were men). The respondents' average age was 28.65 years. Given that the sample was younger as a whole than were the RNs, it is not surprising that a higher proportion (56%) had never been married. An additional 35% were married at the time of the survey, while 9 percent were divorced or separated, and less than one percent were widowed.

The smaller proportion of married individuals in the student sample leads to the anticipation that there would be fewer respondents with children than was the case for the RNs. This expectation is well founded, as 68% reported themselves to be childless. The numbers of respondents with only children under six years of age (8.25) and children both older and younger than six (5.64) are smaller than those with only older kids (18.50). This suggests that individuals may wait until their offspring are at least of school age before (re)enrolling themselves.

Consistent with the finding that more minorities are entering the field (Stevens & Walker, 1993), the racial/ethnic mix of the student sample is more diverse than was the case for the RNs: 85% White, 8% Black, 3% Hispanic, and 4% other.

Education

Schools were asked to survey junior and senior students only. Of course, these distinctions become somewhat blurred when RNs with 2- and 3-year degrees (as well as people from other disciplines) who are returning for their BSNs are thrown into the mix. Table S-1 presents the status of sample members in this regard.

Table S-1
Educational Status of Student Nurse Survey Respondents

School year	Frequency	Percent
Junior	504	31.52
Senior	675	42.21
Non-nursing degree, pursuing BSN	168	10.51
RN pursuing nursing degree	224	14.01
Other	28	1.75
Total	1599	100

Full-time students dominate the sample (81%), with less than two percent pursuing a nursing degree other than a Baccalaureate.

Respondents were asked to indicate (in ranges) how much they were charged for tuition the prior semester. These data are summarized in Table S-2. The largest percentage (38%) fell in the $501-$1,500 range, with relatively few paying over $7,500. In considering

Table S-2
Tuition Charges Semester Prior to Survey--Students

Tuition charge last semester (SQ11)	Frequency	Percent
Less than $500	41	2.50
$501-$1500	626	38.12
$1501-$2500	279	16.99
$2501-$5000	318	19.37
$5001-$7500	188	11.45
$7501-$10000	75	4.57
$10001-$15000	78	4.75
$15001-$20000	34	2.07
More than $20000	3	0.18

these results, it should be kept in mind that the sample of schools included both public and private institutions. There is typically a large gap between the two in terms of cost, with average yearly tuition and fees for 4-year public universities being $1,646, and for private schools $10,393 (U.S. Department of Education, 1993). This wide variation is also reflected in the responses given when respondents were asked to estimate the total cost of their education (e.g., tuition, room and board, etc.). As seen in Table S-3, there were relatively similar percentages of 10-13% spread across the $5,000 categories from $5,000-$30,000, and of 8-9% across the $5,000 groupings from $30,000-$50,000.

Table S-3
Total Cost of Degree--Students

Total cost of degree (SQ12)	Frequency	Percent
Less than $5000	21	1.28
$5001-$10000	174	10.63
$10001-$15000	194	11.85
$15001-$20000	215	13.13
$20001-$25000	198	12.10
$25001-$30000	174	10.63
$30001-$35000	141	8.61
$35001-$40000	105	6.41
$40001-$45000	104	6.35
$45001-$50000	94	5.74
$50001-$55000	49	2.99
More than $55000	168	10.26

Nearly half of the sample was using funds from personal employment to partially or wholly pay for their education (Table S-4). Parental contributions (39%), personal savings (36%), and state/local loans and scholarships (35%) were also popular sources of support. Nearly half (49%) of those students indicating that their employers were reimbursing them for educational expenses were RNs pursing a BSN degree.

Table S-4
Sources of Educational Funding--Students

How funding education (SQ13)	Frequency	Percent (of responses)
Personal employment	809	49.0
Parental contributions	652	39.5
Personal savings	601	36.4
State/local government loan or scholarship	574	34.7
Non-government loan or scholarship	393	23.8
Spouse's employment	298	18.0
Employer reimbursement	285	17.3
Non-military federal loan	273	16.5
Non-military federal grant/scholarship	226	13.7
Military loan/scholarship	57	3.5
Army	57	3.5
Navy	10	0.6
Air Force	7	0.4
University fellowship	5	0.3
Other Sources	137	8.3

Tables S-5 and S-6 present data on the amount of financial aid received as of the time of the survey and the amount that will be owed after graduation. Note that these questions are not completely overlapping, inasmuch as the first covers all types of aid while the second focuses strictly on sources that must be repaid. In both instances, the highest proportions of respondents fell in the first few categories, with a relatively even distribution across the rest of the range.

Table S-5
Amount of Financial Aid Received to Date--Students

Financial aid received so far	Frequency	Percent
None	494	30.05
Less than $5000	316	19.22
$5001-$7500	188	11.43
$7501-$10000	142	8.64
$10001-$12500	105	6.39
$12501-$15000	120	7.30
$15001-$17500	63	3.83
$17501-$20000	61	3.71
More than $20000	155	9.43
Total	1,644	100.00

Table S-6
Amount Owed Upon Graduation--Students

Amount owed after graduation	Frequency	Percent
None	658	40.05
Less than $5000	191	11.62
$5001-$7500	136	8.28
$7501-$10000	135	8.22
$10001-$12500	120	7.30
$12501-$15000	110	6.69
$15001-$17500	74	4.50
$17501-$20000	78	4.75
More than $20000	141	8.59
Total	1,643	100.00

Motivational Factors in Selecting Nursing

Like the RNs, students were asked to indicate their primary reason for wanting to become a nurse (Table S-7). The most remarkable aspect of these data is the fact that they are so similar to those provided by the incumbent nurses. In eight of twelve categories the difference between students and RNs in the proportion of respondents citing that reason was less than one percent; in two other cases (salary, other) the difference was between one and two percent. The only "major" divergence between the two samples is the higher proportion of RNs whose primary motivation was having an interesting job (8.02% vs. 4.38%), with more students interested in the range of practice opportunities (18.90% vs. 14.76%). Whatever other changes may be occurring in the field, it appears that current and future nurses were attracted to the profession for largely similar reasons.

Table S-7
Most Important Reason for Selecting Nursing--Students

Most Important Reason for Becoming a Nurse (SQ16)	Frequency	Percent (of responses)
Care for/help people	833	52.82
Range of practice	298	18.90
Job security	152	9.64
Hands-on profession	92	5.83
Interesting job	69	4.38
Professional respect	32	2.03
Independence	27	1.71
Salary	21	1.33
Decision-making authority	6	0.38
Leadership experience	6	0.38
Technical experience	2	0.13
Other	39	2.47
Total	1577	100.00

Twenty-three percent of the student sample was working outside of nursing prior to entering school. They were asked to indicate what it was about nursing that they thought would be better than the job they held previously. These responses (Table S-8) were also strikingly similar to those provided by the nursing incumbents. In 6 of 10 cases the difference in the percentage marking a particular answer was less than one percent; in three it was between one and two percent. Only in the instance of salary was there more than a two percent difference, with 2.65% more RNs indicating that this was a motivation to leave their prior jobs and enter the field of nursing.

Table S-8
Advantages of Nursing Over Previous Job
Students Who Came to the Field From Another Profession

RN advantage over previous job (SQ17)	Frequency	Percent (of responses)
More rewarding	247	18.96
Better salary	237	18.19
More meaningful	201	15.42
More interesting	157	12.05
Better benefits	117	8.98
More autonomy	106	8.13
More involvement	96	7.37
More authority	59	4.53
Better work schedule	49	3.76
Other	34	2.61
Total	1,303	100.00

Positive, negative, and neutral influences on the students' decision to become a nurse are shown in Table S-9. As with the RNs, parents, friends, siblings, and nursing instructors were the most often cited influencers. Of these, parents and nursing instructors were singled out most often as positive forces, along with spouses and "others." High school counselors received the most negative citations (8%) and the fewest positive (18.6%), although they only accounted for 7% of the citations overall. In general there was a high degree of similarity between the RNs and students in this regard.

Table S-9
Positive, Neutral, and Negative Influences
on the Decision to Enter Nursing--Nursing Students

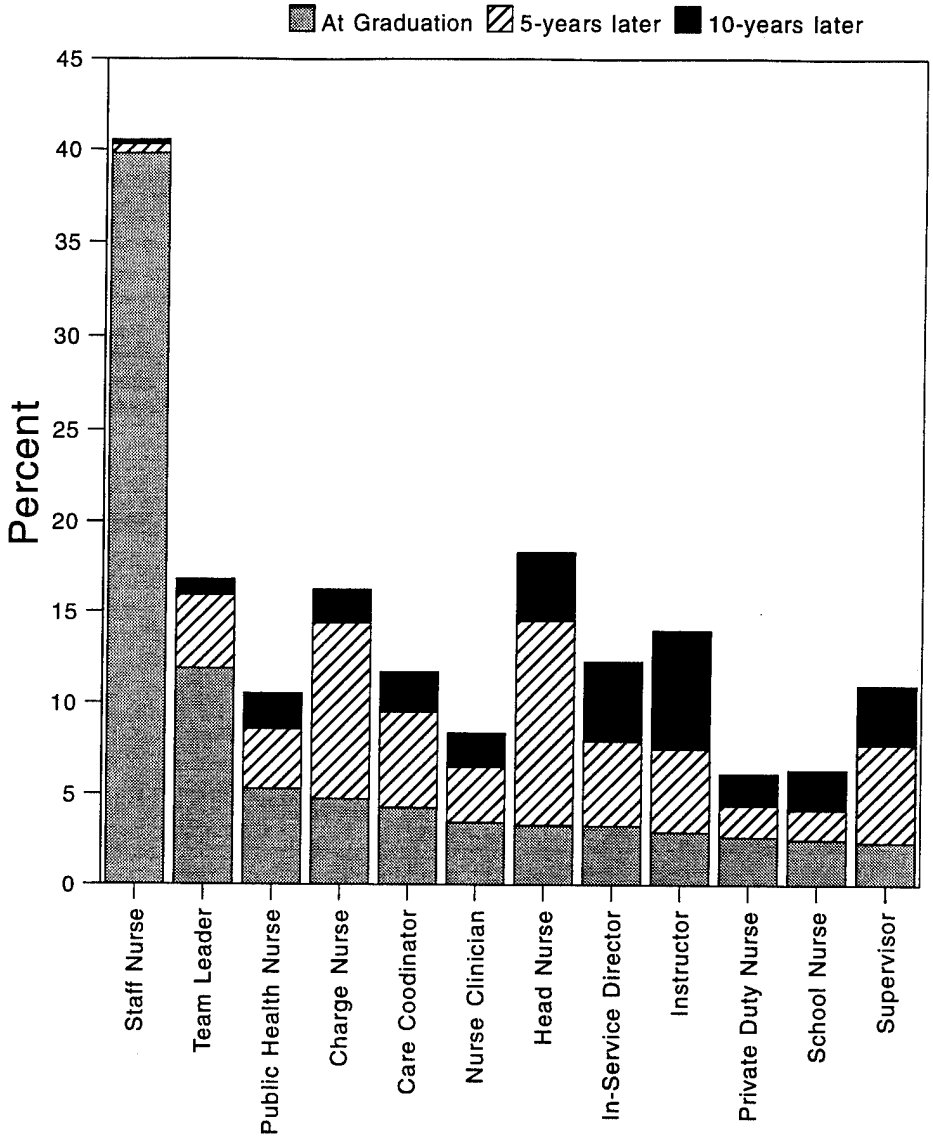
Influence (SQ18)	% of citations	% positive (of those citing)	% neutral (of those citing)	% negative (of those citing)
Parents	1408 11.32	1073 76.21	265 18.82	70 4.97
Friends	1369 11.01	954 69.69	377 27.54	38 2.78
Sibling	1166 9.38	633 54.29	506 43.40	27 2.32
Nursing Instructor	1148 9.23	821 71.52	296 25.78	31 2.70
College Instructor	1005 8.08	400 39.80	571 56.82	34 3.38
Media	984 7.91	387 39.33	553 56.20	44 4.47
Teacher	902 7.25	202 22.39	670 74.28	30 3.33
Spouse/Partner	885 7.12	641 72.43	202 22.82	42 4.75
Counselor	844 6.79	157 18.60	617 73.10	70 8.29
Family Tradition	823 6.62	383 46.54	419 50.91	21 2.55
Hospital Recruiter	561 4.51	191 34.05	360 64.17	10 1.78
Military Recruiter	479 3.85	105 21.92	357 74.53	17 3.55
Children	391 3.76	226 48.29	229 48.93	13 2.78
Other	344 3.02	291 74.42	96 24.55	4 1.02

Work Plans

Nursing student respondents were given a list of 23 job positions, and asked to indicate which they would like to have immediately upon graduation, five years, and ten years later. These data are presented in Figure 4. Perhaps the first thing to note is that, despite the instruction that there be only one mark per time period, multiple responses were common. The confusion apparently resulted from our attempts to make it easier to answer the question by breaking the various position titles down into four categories: patient care, management/administration, education, and other. Many students took this to mean that they should provide one mark for each area for each time period. Despite this glitch, the results still give an indication of the relative desirability of the different positions as viewed by these (mostly) future nurses.

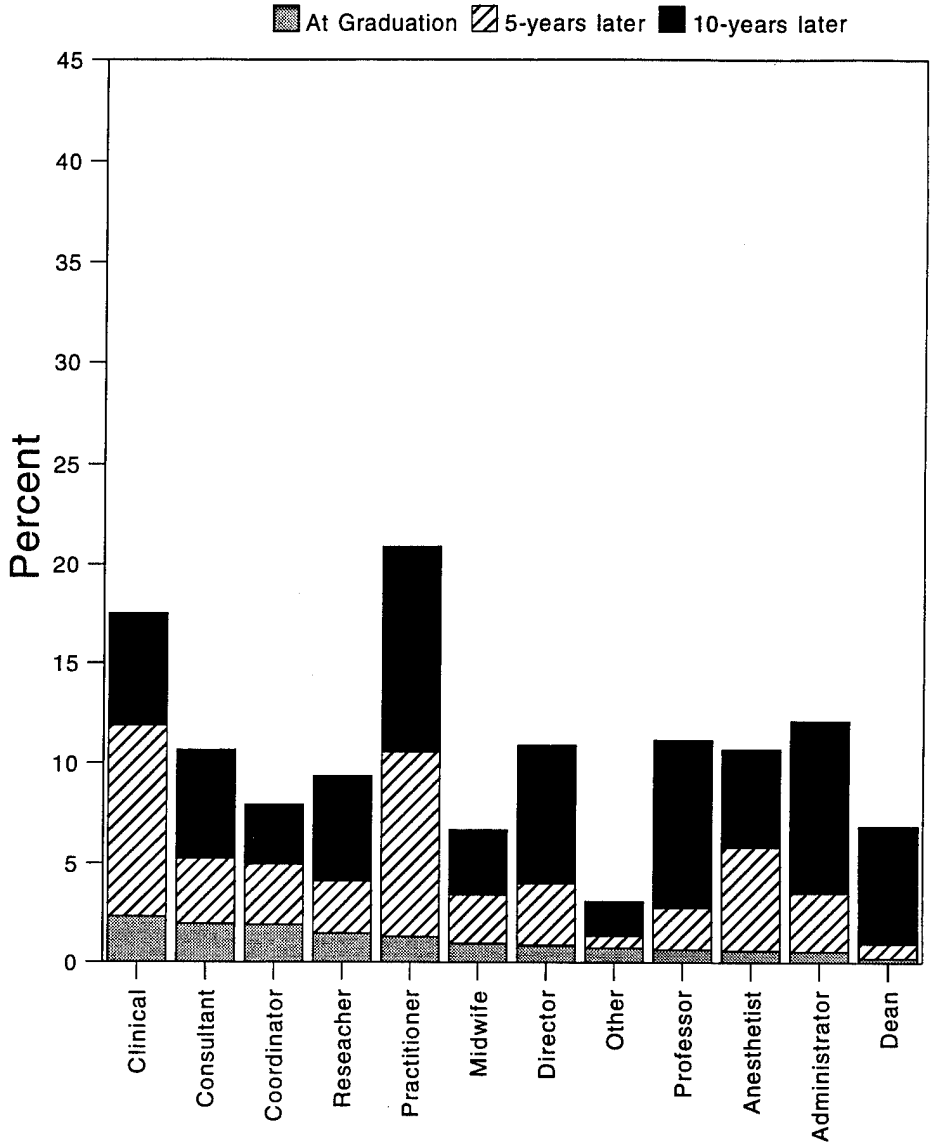
The majority of the post-graduation selections made (40% of the at-graduation selections, with multiple selections for many students) were for staff nurse positions, a logical choice given typical career paths. The remaining responses were spread fairly evenly across categories, with the exception of team leader which received 12% of the choices made. Three positions received ten or more percent of the at-five-years selections: Head nurse (11%), charge nurse (10%), and clinical nurse specialist (10%). When thinking ahead ten years, management positions became more desirable (e.g., administrator (9%), director (7%)). Teaching jobs (professor (8%), dean (6%), and instructor (6%)) also had some allure, as did positions that potentially hold more autonomy and authority (nurse practitioner (10%), clinical nurse specialist (6%), consultant (5%), researcher (5%)).

Overall, it is not clear how realistic these expectations are given the tenure and/or additional education requirements associated with these positions, but the data do provide some indication of the career goals of nursing students. Although potentially influenced by the very nature of the question, it is clear that continual advancement and increased responsibility and autonomy are a goal for the majority of the respondents.



10-years later	0	1	2	2	2	2	4	4	6	2	2	3
5-years later	0	4	3	10	5	3	11	5	5	2	2	5
At Graduation	40	12	5	5	4	3	3	3	3	3	3	2

Figure 4. Position Desired Upon, 5 Years After, and 10 Years After Graduation--Students



10-years later	6	5	3	5	10	3	7	2	8	5	9	6
5-years later	10	3	3	3	9	2	3	1	2	5	3	1
At Graduation	2	2	2	1	1	1	1	1	1	1	1	0

Figure 4. (Continued) Position Desired Upon, 5 Years After, and 10 Years After Graduation--Students

Like the nurses, students were asked to rate the importance of a variety of work-related dimensions. Rather than satisfaction with each, however, the student respondents were asked where they thought each goal or characteristic could best be achieved--in the military, in the civilian world, or equally in both. In acknowledgement of the fact that some of the students may not have had a lot of experience with these domains, they were also allowed to indicate that they simply didn't know.

The responses of those students who felt that a particular domain was unimportant are of little concern in the present analyses. If they don't care about spouse employment opportunities, for instance, then it is of little consequence which arena they feel can better provide such opportunities. Therefore, Table S-10 presents the evaluations of where each job-related factor can best be found by those who rated that factor important or very important to them. Keeping in mind that the final sample size was 1,562, the total column on the right side of the table reveals that limiting the data in this manner had relatively minor effects overall. That is, most respondents rated each of the factors as being at least somewhat important to them.

The inexperience of the majority of these respondents is reflected in the relatively high percentages who indicated that they were unable to evaluate the two domains (military and civilian) as providers of the various benefits and work characteristics. In 12 of 28 cases, the largest number of respondents indicated that they did not know enough to make the distinction.

Overall, the results indicate that only small percentages of the respondents felt that the military was best able to provide the benefits/resources. In seven of the 28 cases both domains were judged equal by the largest number of students, while in eight the civilian world came out ahead. This leaves "opportunity to continue education funded by employer," where 33% rated the military best, 24% the civilian realm, 15% rated both equally, and 28% didn't know.

Other areas for which notable proportions of the respondents gave high marks to the military include stable employment (24%), opportunity for supervisory/management experience (15%), and preceptorship program (14%). On the flip side, the Services came out poorly in regard to opportunity to serve others (2%), flexibility of schedule (3%), time for personal and family life (4%), and quality of patient care (4%).

Table S-10
Where Work Goals Can be Met
Students Rating Goal as Important or Very Important

Importance of work/life dimensions and where they can best be met. (SQ20, 21,22,23) (Those rating important/very important)	Characteristic/Benefit Available in...				Total Important/Very Important
	Military	Civilian	Equal	Don't Know	
Opportunity to continue education funded by employer	476 33.40	335 23.51	210 14.74	404 28.35	1425 100.00
Stable employment	366 24.13	545 35.93	317 20.90	289 19.05	1517 100.00
Opportunity for supervisory/managerial experience	178 14.83	361 30.08	257 21.42	404 33.67	1200 100.00
Adequacy of preceptorship program	170 13.93	316 25.90	232 19.02	502 41.15	1220 100.00
Opportunity to attend specialty courses	202 13.90	453 31.18	292 20.10	506 34.82	1453 100.00
Preparation for current position (e.g., orientation, training)	205 13.54	560 36.99	265 17.50	484 31.97	1514 100.00
Acknowledgment of job performance	183 12.52	525 35.91	304 20.79	450 30.78	1462 100.00
Variety of nursing experiences available	152 10.65	486 34.06	365 25.58	424 29.71	1427 100.00
Morale in work area	161 10.60	485 31.93	353 23.24	520 34.23	1519 100.00
Nurse-doctor collaboration	157 10.51	461 30.86	335 22.42	541 36.21	1494 100.00
Salary	142 9.94	316 22.11	552 38.63	419 29.32	1429 100.00
Nurse supervisor abilities/support	144 9.80	498 33.90	308 20.97	519 35.33	1469 100.00
Opportunity to gain continuing education units (CEUs)	134 9.74	543 39.46	272 19.77	427 31.03	1376 100.00
Opportunity to make administrative decisions in work setting	114 9.01	329 26.01	372 29.41	450 35.57	1265 100.00

Table S-10 (continued)
Where Work Goals Can be Met
Students Rating Goal as Important or Very Important

Importance of work/life dimensions and where they can best be met. (SQ20, 21,22,23) (Those rating important/very important)	Characteristic/Benefit Available in...				Total (Important/ Very Important)
	Military	Civilian	Equal	Don't Know	
Assigned patient-load	127 8.86	390 27.20	325 22.66	592 41.28	1434 100.00
Opportunity to work in clinical area or role of choice	133 8.77	383 25.26	515 33.97	485 31.99	1516 100.00
Frequency of floating to other clinical units	90 8.44	227 21.29	268 25.14	481 45.12	1066 100.00
Authority to make patient-care decisions	122 8.23	498 33.58	371 25.02	492 33.18	1483 100.00
Availability of child care	55 7.87	194 27.75	203 29.04	247 35.34	699 100.00
Incentives/support to utilize, conduct, and publish research	70 7.79	250 27.81	246 27.36	333 37.04	899 100.00
Employment opportunities for spouse	51 7.48	148 21.70	303 44.43	180 26.93	682 100.00
Opportunity to continue education funded by me	54 5.91	252 27.57	322 35.23	286 31.29	914 100.00
Number of hours at work each day	82 5.80	412 29.12	462 32.65	459 32.44	1415 100.00
Amount of paperwork	68 5.56	358 29.27	305 24.94	492 40.23	1223 100.00
Quality of patient care	64 4.18	569 37.17	401 26.19	497 32.46	1531 100.00
Time for personal/family life	51 3.58	276 19.40	750 52.17	346 24.31	1423 100.00
Flexibility of schedule	43 2.98	243 16.82	703 48.65	456 31.56	1445 100.00
Opportunity to serve others	26 1.87	789 56.60	372 26.69	207 14.85	1394 100.00

Clearly, to the extent that the military is able to provide advantages over the civilian world of nursing this has not been communicated to students. This is reflected in the fact that on 20 of 28 dimensions the civilian world was given the advantage or the respondent indicated that he/she did not know enough to make the judgment asked for. In some cases, these results may reflect reality. That is, given the demands of the military lifestyle it may well be true that it is harder to carve out time for personal and family needs than is the case in the civilian world. The concern, then, is with those areas that the ANC can compete with civilian nursing. However, even these work-related dimensions are not perceived very favorably by most nursing students.

Military Experience

Student nurses were asked a variety of questions about their prior contact with the military in general, and the ANC in particular. About five percent of the sample was connected to the military in some fashion at the time of the survey (Table S-11), while another three percent had served previously. As seen in Table S-12, the Army was/is the primary branch of service (61%), followed by the Navy (24%) and the Air Force (15%).

Table S-11
Military Participation--Students

Ever in the military (SQ24 SQ25)	Frequency	Percent
No	1481	91.87
Served on Active Duty (not in now)	46	2.85
Served in Reserve (not in now)	6	0.37
Served in National Guard (not in now)	1	0.06
Yes, in Reserve now (was on Active Duty)	12	0.74
Yes, am now Active Duty	11	0.68
Yes, in Reserve	19	1.18
Yes, in National Guard	8	0.50
Yes, ROTC	23	1.43
Yes, Student nurse	5	0.32
Total	1612	100.00

Table S-12
Branch of Service--Students

Which branch presently serving in (SQ39A)	Frequency	Percent
Army	54	61.37
Navy	21	23.86
Air Force	13	14.77
Marine Corps	0	0.00
Coast Guard	0	0.00
Total	88	100.00

Overall, the students were less likely to have had a parent who served in the military than were the older RNs (53% vs. 60%), and a higher percentage of those whose parents joined were in the Reserve ranks (6% vs. 3%). The participation rates for siblings are similar among the two samples, with 23% of the students having a brother or sister who was or is in the military as compared to 25% of the registered nurses. The students' relatives were somewhat less likely to have served in the Army, with the difference made up largely by the Air Force for parents and the Marine Corps for siblings (Table S-13).

Table S-13
Branch of Service, Parents and Siblings--Students

Service parents/siblings served (SQ50B/51A)	Parents served	Siblings served
Army	445 50.28	153 39.95
Navy	216 24.41	94 24.54
Air Force	148 16.72	76 19.84
Marine Corps	59 6.67	55 14.36
Coast Guard	17 1.92	5 1.30
Total	885 100.00	383 100.00

Among the students, 67.19% indicated that they had heard of the Army Nurse Corps. This is some ten percent less than was estimated for registered nurses. As shown in Table S-14, the most popular avenues for learning about the Corps were school visits by recruiters (25%), career and job fairs (18%), through the mail (16%), and journal advertisements (9%).

When asked if they had ever discussed joining the ANC, 27.13% of these nursing students said that they had. For a large segment of the respondents, their discussions were apparently not idle chat, as 23% indicated that they talked with a military recruiter (Table S-15). Partners (18%), mothers (15%), and fathers (14%) were the other likely participants in such discussions. The majority of respondents indicated that their impressions of the ANC were either positive or very positive (Table S-16). Apparently the recruiters were somewhat more successful in shedding a good light on the Corps, as 14% of those who talked with a recruiter came away with a *very* positive impression, as compared to 9% of those who reported having discussions in general. In either case, the numbers reporting negative impressions of the ANC were relatively small (8-11%). Finally, 31.28% of the respondents indicated that they knew someone who had served in the Army Nurse Corps.

Table S-14
Source of Information on the ANC--Students

Original source-info on ANC (SQ40A)	Frequency	Percent
School visit by recruiter	211	24.68
Career/job fair	155	18.13
Mail	139	16.26
Journal advertisement	81	9.46
Family/friend	47	5.50
School visit--other service	40	4.68
Recruiter (at station)	32	3.74
Convention exhibit	24	2.81
ANC officer	22	2.57
School paper advertisement	15	1.75
Newspaper advertisement	12	1.40
Instructor/professor	12	1.40
Symposium/workshop	0	0.00
Prior service	0	0.00
Don't remember	35	4.09
Other	31	3.63
Total	856	100.00

Table S-15
Source of Conversation Regarding ANC--Students

Discussed ANC with whom (SQ27A)	Frequency	Percent (of responses)
Military recruiter	163	22.61
Spouse/partner	131	18.17
Mother	111	15.39
Father	104	14.42
Army nurse	59	8.18
Sibling	42	5.82
Civilian nurse/Army Reservist	37	5.13
Counselor/teacher	31	4.30
Other	43	5.96
Total	721	99.98

Table S-16
Impressions of ANC Based on Discussions
Recruiters and Others--Students

Impressions of ANC (SQ27B/C)	Very Positive	Positive	Neutral	Negative	Very Negative	Total
Discussed--general	30 9.26	164 50.62	103 31.79	22 6.79	5 1.54	324 100.00
Discussed--recruiter	33 14.10	118 50.43	56 23.93	20 8.55	7 2.99	234 100.00

Advertising

As with the registered nurses, a larger proportion of the students indicated that they remembered hearing advertisements for military service in general (94%) as opposed to those promoting the ANC specifically (55%). (See Table S-17.) Again, how widespread an advertising appeal may be disseminated apparently does not equate with effectiveness. When taken as a proportion of those who heard or saw each type of advertising, 50% indicated that the ANC appeal did increase their interest in joining. This compares to 39% who indicated that the general military ad increased their interest. This makes sense because nursing students are more likely to be influenced by a nursing, rather than a general, military ad.

Table S-17
Advertising Recall--Students

See Joint advertising? (SQ36) See ANC advertising? (SQ37)	Joint	ANC
No	102 6.33	718 44.62
Yes, greatly increased interest	63 3.91	47 2.92
Yes, moderately increased interest	172 10.67	122 7.58
Yes, slightly increased interest	360 22.33	276 17.15
Yes, did not increase interest	915 56.76	446 27.72
Total	1612 100.00	1609 100.00

Magazines, television, and nursing journals were the most frequently cited media in which ANC advertising was seen/heard (Table S-18). These results parallel those found for registered nurses. The students, however, were more likely to cite visits by Army recruiters to schools as a source of information about military nursing. Whether the RNs simply forgot that they saw a recruiter in their schools, or this activity is occurring with greater frequency in more recent years is impossible to determine from the data at hand. As was the case with RNs, it is interesting that TV rates relatively high even though no ANC ads are aired. This phenomenon seems to attest to "brand name" identity and the collateral benefit of other military television advertising.

Table S-18
Source of Media Advertising--Students

Media in which advertising seen (SQ37A)	Frequency	Percent
Magazines	271	19.65
Television	213	15.45
Nursing journals	158	11.46
Recruiter school visit	135	9.79
Army recruiter school visit	132	9.57
Unsolicited brochures	124	8.99
Career day	86	6.24
Billboards	73	5.29
Radio	45	3.26
Other services school visit	35	2.54
Recruiting letter	29	2.10
Newspapers	28	2.03
School paper	20	1.45
Dinner/lunch seminar	11	0.80
Convention	11	0.80
Literature from recruiter	8	0.58
Total	1379	100.00

Finally, student respondents were asked about the type of television and radio programs they prefer. Although these students were more likely than those already in the nursing field to say that they rarely watch television (11% vs. 7%), their preferences are otherwise quite similar; the most popular types of shows being situation comedies and news/special reports (Table S-19). To the extent that the age gap between the two samples shows anywhere in the data, it appears to be in patterns of radio listening. Although the differences aren't huge, students were more likely to report listening to rock (29%vs. 24%), while the RNs had a stronger preference for easy listening (21% vs. 17%). The student results regarding radio listening are shown in Table S-20.

Table S-19
Most Watched TV Programs--Students

Type of TV programs watched (SQ38)	Frequency	Percent
Situation comedies	630	12.87
News/special reports	511	10.44
Movies on pay/cable	398	8.13
Evening dramas	398	8.13
Movies on regular TV	385	7.87
Educational programs	377	7.70
Daytime soaps	336	6.87
Action/adventure	333	6.80
Sports	311	6.36
Public television	260	5.31
Music/variety	189	3.86
Game shows	159	3.25
Rarely watch TV	555	11.34
Other	51	1.04
Total	4893	99.97

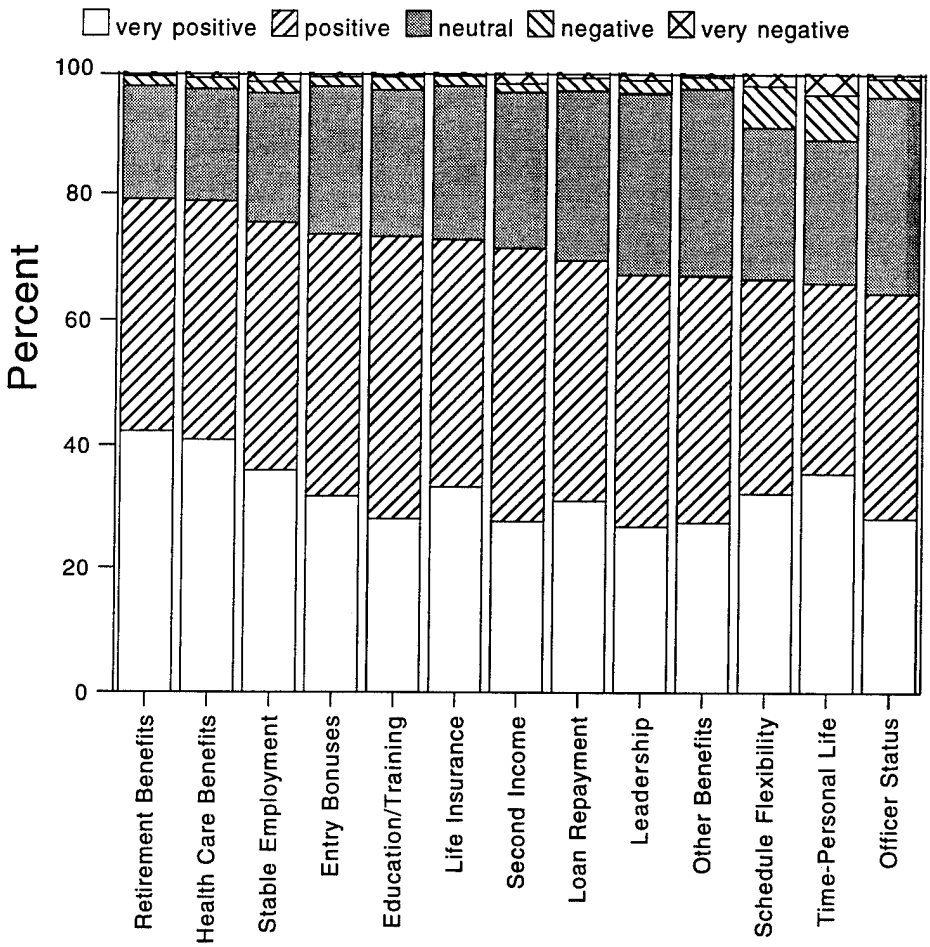
Table S-20
Most Listened to Radio--Students

Type of Radio programs listened to (SQ55)	Frequency	Percent
Rock	846	29.40
Country/western	494	17.17
Easy listening	483	16.79
Classical	229	7.96
News/talk	175	6.08
Gospel/religious	173	6.01
Jazz	139	4.83
Soul	127	4.41
Rarely listen to radio	78	2.71
Other	133	4.62
Total	2877	100.00

Student Opinions about the ANC

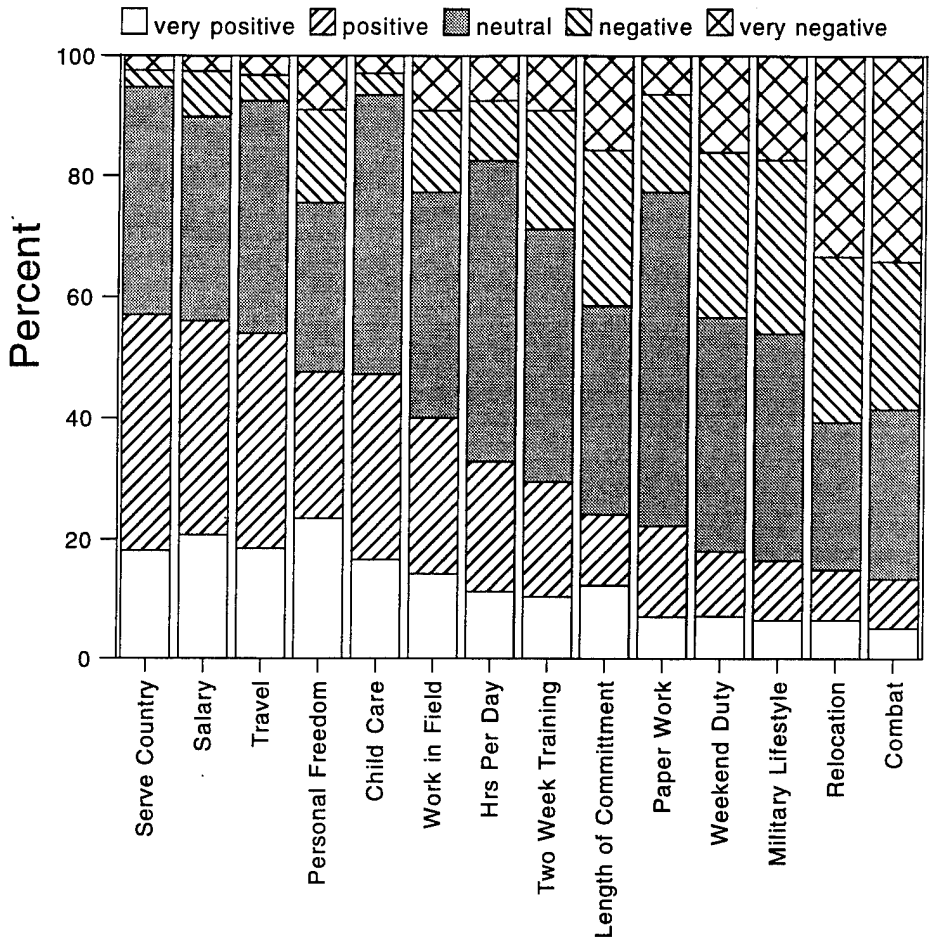
Student nurses were provided with a variety of job and life dimensions and asked to indicate how attractive the ANC was in regard to each. These results are presented in Figure 5. Of the 27 attributes, 17 were judged by over half the sample to be positive draws to military service. Over three-quarters of the respondents rated retirement benefits, health benefits, and stable employment positive or very positive factors for the ANC. Entry bonuses (74%), opportunities for education and training (73%), life insurance (73%), and (for the Reserve/Guard) the ability to have a second income (71%) were also thought to be pluses for the military.

The factors receiving the largest *negative* feedback (negative or very negative) are those one might expect: the possibility of having to relocate (61%) and/or serve in combat (59%), the military lifestyle (45%), the Reserve requirement for weekend duty (43%), and the length of the commitment (41%). Other less problematic but still noteworthy negatives include the yearly Reserve requirement for two weeks of active duty training (29%), the



very negative	1	2	2	1	1	1	3	2	2	1	3	4	2
negative	2	2	2	2	2	2	1	2	2	2	7	7	3
neutral	18	18	20	23	23	24	25	27	29	30	24	23	31
positive	37	38	40	42	45	39	44	38	40	40	34	30	36
very positive	42	41	36	32	28	33	28	31	27	27	32	35	28

Figure 5. Evaluation of Attributes of Military Nursing -- Students



very negative	2	2	3	9	3	9	7	9	16	6	16	17	33	34
negative	3	8	4	16	4	14	10	20	26	16	27	29	27	24
neutral	38	34	39	28	46	37	50	42	34	55	39	38	24	28
positive	39	35	36	24	31	26	22	19	12	15	11	10	8	8
very positive	18	21	18	24	17	14	11	10	12	7	7	7	7	5

Figure 5. (Continued) Evaluation of Attributes of Military Nursing -- Students

amount of personal freedom (24%), the need to participate in field training (23%), and the amount of paperwork (23%).

On the surface it would appear that the characteristics of military service that are viewed favorably by nursing students are those benefits and programs that have been established over the years precisely for the purpose of attracting qualified personnel. Conversely, the aspects judged negatively are, for the most part, inherent to participating in the national defense. Thus they will be difficult to alter in order to assuage the concerns of those who may be considering military nursing.

The influence of having personal contact with the military is hinted at in the results presented in Table S-21. As was done for RNs, a military contact measure was created in which a point was "awarded" to each respondent for knowing someone in the ANC, and having a parent or a sibling who was in any of the Services/components. The responses to the question asking how rewarding military nursing is as compared to civilian nursing were then mapped against this measure. Generally, those with lower contact scores tend to be more likely to say that they were not sure how military and civilian nursing compare. Because such large percentages fall into the "not sure" category, the remaining cell sizes are quite small and should be treated with some caution. Yet it remains the case that a higher percentage of those with 2 to 3 contact scores rated military nursing as somewhat or much more rewarding then did those with less exposure. The reverse was also true (e.g., those with little military contact more frequently rated civilian nursing higher). Overall, however, 72% of the respondents either said they weren't sure which realm was more rewarding or that they were both the same.

Table S-21
Evaluation of Military versus Civilian Nursing
with Military Contact Scale--Students

Military vs. Civilian Nursing	Military Contact			
	0	1	2	3
Not sure	249 ---	352 ---	148 ---	34 ---
Military much more rewarding	12 6.12	24 6.74	26 11.98	7 14.89
Military somewhat more rewarding	36 18.37	85 23.88	54 24.88	18 38.30
Same	100 51.02	158 44.38	94 43.32	14 29.79
Civilian somewhat more rewarding	31 15.82	61 17.13	26 11.98	7 14.89
Civilian much more rewarding	17 8.67	28 7.86	17 7.83	1 2.13
Total	445 100.00	708 100.00	365 100.00	81 100.00

Regarding compensation, the data in Tables S-22 and S-23 reveal that 46% of the sample felt that starting salaries for nurses were moderately or substantially higher in the military and 63% said that over a career the ANC would provide higher earnings. Taking into account those who said that there were no differences in this regard (starting compensation 30%, lifetime earnings 21%), only a relatively small portion of the students thought that they would be better off financially in civilian nursing.

Table S-22
Comparison of Military and Civilian Starting Pay
Students

Compare military/civilian starting compensation (SQ322	Frequency	Percent
Military substantially higher	125	12.16
Military moderately higher	346	33.66
About the same	314	30.54
Military moderately lower	188	18.29
Military substantially lower	55	5.35
Total	1028	100.00

Table S-23
Comparison of Military versus Civilian Career Earnings
Students

Compare lifetime civilian/ANC earnings (SQ33)	Frequency	Percent
Army substantially higher	252	25.74
Army moderately higher	361	36.87
About the same	211	21.55
Army moderately lower	111	11.34
Army substantially lower	44	4.49
Total	979	99.99

Propensity

Students' propensity to serve in the military was assessed in the same manner as for nurses. Separate questions were asked regarding Active Duty and Reserve service, with interest prior to, and since Operations Desert Shield/Storm rated. The active duty results are presented in Table S-24, where prior and current interest are crosstabulated.

Table S-24
Active Duty Propensity Before and After ODS/S--Students

		Opinion Before Desert Storm					
Opinion After Desert Storm (SQ28)		Definitely Yes	Probably Yes	No Opinion	Probably No	Definitely No	Total
Definitely Yes	Number	32	5	0	1	1	39
	Row %	82.05	12.82	0.00	2.56	2.56	100.00
	Column %	76.19	2.92	0.00	0.20	0.22	2.70
Probably Yes	Number	3	90	20	16	4	133
	Row %	2.26	67.67	15.04	12.03	3.01	100.00
	Column %	7.14	52.63	7.19	3.19	0.89	9.22
No Opinion	Number	1	21	202	30	5	259
	Row %	0.39	8.11	77.99	11.58	1.93	100.00
	Column %	2.38	12.28	72.66	5.99	1.11	17.96
Probably No	Number	2	37	32	326	18	415
	Row %	0.48	8.92	7.71	78.55	4.34	100.00
	Column %	4.76	21.64	11.51	65.07	4.00	28.78
Definitely No	Number	4	18	24	128	422	596
	Row %	0.67	3.02	4.03	21.48	70.81	100.00
	Column %	9.52	10.53	8.63	25.55	93.78	41.33
Total	Number	42	171	278	501	450	1,442
		2.91	11.86	19.28	34.74	31.21	100.00

Table S-25
Reserve/Guard Propensity Before and After ODS/S--Students

		Opinion Before Desert Storm					
Opinion After Desert Storm (SQ28)		Definitely Yes	Probably Yes	No Opinion	Probably No	Definitely No	Total
Definitely Yes	Number	34	6	3	2	2	47
	Row %	72.34	12.77	6.38	4.26	4.26	100.00
	Column %	65.38	2.49	1.06	0.44	0.49	3.26
Probably Yes	Number	9	129	29	20	5	192
	Row %	4.69	67.19	15.10	10.42	2.60	100.00
	Column %	17.31	53.53	10.21	4.37	1.23	13.31
No Opinion	Number	2	36	198	30	4	270
	Row %	0.74	13.33	73.33	11.11	1.48	100.00
	Column %	3.85	14.94	69.72	6.55	0.98	18.71
Probably No	Number	4	44	30	302	17	397
	Row %	1.01	11.08	7.56	76.07	4.28	100.00
	Column %	7.69	18.26	10.56	65.94	4.17	27.51
Definitely No	Number	3	26	24	104	380	537
	Row %	0.56	4.84	4.47	19.37	70.76	100.00
	Column %	5.77	10.79	8.45	22.71	93.14	37.21
Total	Number	52	241	284	458	408	1,443
		3.60	16.70	19.68	31.74	28.27	

Higher percentages of students express positive propensity for military nursing than was true among registered nurses. This is somewhat expected given the younger, less settled nature of the sample. As with the nurses, there is a somewhat greater interest among students in Reserve service (Table S-25). For instance, whereas just under 12% of the respondents said they were probably or definitely interested in active duty post ODS/S, almost 17% responded in a similar manner to the Reserves.

Comparing before/after results, it is clear that all categories except for "definitely not" are smaller when the reference is post-ODS/S. Overall, there was a switch out of the more positive response groups into the least positive, with the largest migration from "probably" to "definitely" no in both the active and Reserve data.

Comparing Nurse-Student Propensity

As indicated previously, propensity for both Active Duty and Reserve service was higher among students than among current RNs. Furthermore, as seen in Tables S-26 and S-27, the impact of ODS/S was generally greater in the RN sample as well. The exception to this general rule is the larger increase in Active Duty negative propensity among students. Even though a greater percentage of the students shifted into the negative categories, their overall propensity was still higher than was the case among the RNs.

Table S-26
Comparison of Changes in Active Duty Propensity Before/After ODS
Current RNs and Nursing Students

	Positive percentage		% point shift	Negative percentage		% point shift
	Before	After		Before	After	
Nurses	10.17	5.63	-4.54	80.47	83.24	+2.77
Students	14.77	11.92	-2.85	65.95	70.11	+4.16

Table S-27
Comparison of Changes in Reserve/Guard Propensity Before/After ODS
Current RNs and Nursing Students

	Positive percentage		% point shift	Negative percentage		% point shift
	Before	After		Before	After	
Nurses	20.35	11.49	-8.86	67.57	75.18	+7.61
Students	20.30	16.57	-3.73	60.01	64.72	+4.71

Modeling Propensity For Military Nursing

As mentioned previously, both RNs and students were presented four questions dealing with the relative interest in serving as a military nurse on active duty or in the reserve. Specifically, the questions were:

NQ42A	Before Operation Desert Storm, I would have been interested in serving on active duty as a military nurse ....
NQ42B	Before Operation Desert Storm, I would have been interested in serving as a nurse in the military reserve...
NQ42C	Since Operation Desert Storm, I have been interested in serving on active duty as a military nurse ....
NQ42D	Since Operation Desert Storm, I have been interested in serving as a nurse in the military reserve...

The response options formed a five point scale (1 to 5) where:

5 = "Definitely Yes" 4 = "Probably Yes" 3 = "No Opinion"
2 = "Probably Not" 1 = "Definitely Not"

These questions clearly provide a measure of the relative interest of nurses for military service. By design, they were only asked of those who had never been in the military. This afforded us the opportunity to investigate the relationship of demographic characteristics, opinions, and other factors to propensity for military nursing among the population of civilian nurses and nursing students.

Methodology. Separate models were estimated for the "since Operation Desert Storm" questions (active and reserve) for each survey sample (RNs and students). A total of four models were calculated using the General Linear Models (GLM) procedure in Statistical Analysis System (SAS). Due to the potential of large amounts of missing responses, predictor variables were examined in small clumps. That is, small groups of predictors were entered into the model. Only those variables with

significant coefficients (.05 significance level) were retained and a new group of predictors added. Along the way, formerly retained predictors could be dropped if their coefficients were no longer statistically significant. Once this iterative process was completed, the models were estimated again using SAS Proc Reg and the MAXR option. This provided a means to assess the relative contribution of each variable in the model. Predictor variables tested included:

Background:	gender, age, marital status, presence of children at home
Education:	current enrollment in degree program, highest level of education, primary focus of highest degree
Nursing factors:	professional certification, most important reason for becoming a nurse, employed full- or part-time, employment setting, direct care in hospital, secondary job in nursing
Career issues:	personal lifestyle, working conditions, professional issues, educational issues.
Military contact:	know active duty Army nurses, know Army Reserve nurses, parents in military, siblings in military
Economic:	annual earnings from nursing, amount of financial aid for school, school debt upon graduation

Those variables with an arbitrary scale (i.e., classification variables such as most important reason for becoming a nurse) were transformed into sets of binary (0,1) variables and entered into the model as a group.

Results for RNs. The prediction equation for active duty propensity (since ODS/S) based on responses from RNs included six variables. These were:

NQ4	Marital status (married/not married)
NQ29B_1	Opportunity to serve others - satisfaction level
NQ29A_5	Time for personal/family life - importance
NQ31A_2	Opportunity to work in area or role of choice - importance
NQ31A_7	Incentives/support to utilize, conduct, and publish research -importance
NQ32A_4	Opportunity to attend specialty courses, such as Intensive Care Unit (ICU) course, practitioner courses - importance

The variance explained by the model was relatively small with an R-square of only 0.105. The parameter estimates and model statistics are in Table M-1.

Table M-1
Registered Nurse Propensity for Active Duty Service

Variable	Parameter Estimate	Standard Error	F	Prob > F	Marginal R-square
NQ31A_7	0.153	0.020	60.64	0.0001	0.067
NQ4_1	-0.225	0.055	16.42	0.0001	0.017
NQ29A_5	-0.121	0.039	9.52	0.0021	0.007
NQ32A_4	0.091	0.027	11.18	0.0009	0.007
NQ29B_1	-0.079	0.034	5.30	0.0215	0.005
NQ31A_2	-0.084	0.043	3.82	0.0510	0.002
Intercept	2.293	0.291	62.08	0.0001	

RNs with high interest in active-duty military nursing tended to:

- place higher importance on opportunities to conduct research;
- be single;
- place lower importance on free time for personal/family life;
- place high importance on opportunities to attend specialty courses;
- be dissatisfied with their current opportunities to serve others, and;
- place lower importance on opportunities to work in area or role of choice.

The equation for reserve duty propensity included seven variables. Three were in common with the active duty equation --- NQ4_1, NQ31A_7, and NQ32A_4. The other variables were:

NQ5	Children at home (no/yes)
NQ8	Currently enrolled in degree program
NQ35	Income from nursing
NQ51	Siblings in military

The overall explanatory power of the reserve model was almost identical to that of the active duty model --- 0.106. Parameter coefficients are shown in Table M-2.

Table M-2
Registered Nurse Propensity for Reserve/Guard Service

Variable	Parameter Estimate	Standard Error	F	Prob > F	Marginal R-square
NQ31A_7	0.137	0.023	34.58	0.0001	0.058
NQ32A_4	0.142	0.032	20.01	.00001	0.017
NQ4_1	-0.258	0.071	13.19	0.0003	0.011
NQ35	0.041	0.012	11.10	0.0009	0.007
NQ51	0.163	0.059	7.56	0.0061	0.005
NQ8	0.210	0.084	6.22	0.0127	0.005
NQ5	0.136	0.066	4.30	0.0382	0.003
Intercept	0.507	0.185	7.53	0.0062	

Similar to the active propensity, the single most predictive factor associated with high reserve propensity is placing high importance on opportunity to conduct research. The coefficient is slightly smaller in the reserve model (0.137 vs 0.153). However, one would expect the opportunities to do research in the reserves to be less. Opportunities to attend specialty courses had a slightly larger coefficient, while being single contributed about the same weight. High reserve propensity RNs also tended to:

- have higher nursing incomes;
- have siblings in the service;
- be currently enrolled in a degree program; and,
- have children at home.

The sign of the coefficients on income and children at home are not what one would expect, and therefore difficult to interpret. However, their marginal contribution to prediction is small.

Results for Student Nurses. Very little of the variation in student propensity for active or reserve service could be explained from the survey items. The R-squares for the active propensity and reserve propensity models were .030 and .038, respectively. Both models had four predictors --- three common to both which were:

SQ21A_2	Flexibility of schedule - importance
SQ23A_1	Opportunity to gain continuing education units - importance
SQ30	Know individuals who are or have served on Active Duty in the Army Nurse Corps

As expected, the active propensity model included the Married/Not married question (SQ4_1), while the reserve model included SQ15 --- debt after graduation. The model parameters are contained in Tables M-3 and M-4.

Table M-3
Student Nurse Propensity for Active Duty Service

Variable	Parameter Estimate	Standard Error	F	Prob > F	Marginal R-square
SQ23A_1	0.147	0.038	14.83	0.0001	0.010
SQ4_1	-0.199	0.062	10.49	0.0012	0.007
SQ30	0.191	0.065	8.69	0.0032	0.006
SQ21A_2	-0.120	0.042	8.12	0.0045	0.006
Intercept	1.949	0.243	64.51	0.0001	

Table M-4
Student Nurse Propensity for Reserve/Guard Service

Variable	Parameter Estimate	Standard Error	F	Prob > F	Marginal R-square
SQ23A_1	0.199	0.040	24.25	0.0001	0.017
SQ30	0.238	0.068	12.16	0.0005	0.008
SQ21A_2	-0.142	0.044	10.37	0.0013	0.007
SQ15	0.032	0.011	8.09	0.0045	0.005
Intercept	1.778	0.256	48.24	0.0001	

The signs and magnitudes of the variables common to both models were quite similar. That is, student nurses with higher interest in military service tended to:

- place higher importance on opportunities to gain continuing education credits;
- know a current or former active duty Army nurse;
- place lower importance on flexibility of schedule;
- be single (active duty); and,
- have larger school debt.

Chapter 4
Discussion and Conclusions

The data presented in this report strongly support the conclusion that the ANC has done an effective job in promoting itself and its image. The Corps' visibility is high, with 77% of the RNs and 67% of the students indicating that they were aware of Army nursing. Just over 60% of current and 55% of future RNs said they had heard or seen advertising for the Corps, with 41% and 50%, respectively, indicating that it had at least some positive effect on their interest in joining.

Other data indicate that efforts to structure incentives and benefits that are attractive to nurses have been largely successful. When asked to evaluate such factors as entry bonuses, retirement benefits, availability of education and training, and stability of employment, large majorities of the respondents to both surveys rated the ANC positively or very positively. Furthermore, the evidence suggests that the ANC itself has a good reputation based on the experiences RNs have had working with current or former Army nurses. Significant percentages gave high marks to nurses with military experience in terms of (among other things) their dependability, adaptability, and the respect with which they treat their peers and superiors.

The nurses and students who participated in this survey also ranked the ANC highly in terms of compensation levels as compared to civilian nursing. Some 46% of both samples indicated that starting salaries for ANC officers were moderately or substantially higher than a nurse entering the civilian workforce would receive. Majorities also indicated that, in their view, compensation over the course of a 20-year career would be higher in the military.

Although relatively small percentages of the nurses and students indicated that they had actually talked with anyone about the joining the ANC (26% and 27%, respectively), the majority of those who had, said that their impressions based on such discussions were positive or very positive.

This is not to suggest that there is no room for improvement. For instance, when students were asked how important various job/life dimensions were to them and where (military, civilian) they could best be attained, the military did not fare well. In most instances, the respondents either knew too little to answer the question or felt that civilian nursing had the edge.

And then, of course, there is the issue of willingness to enter the military (i.e., propensity). On the surface, the results from these surveys would seem to be encouraging. In a retrospective measure of propensity for the period prior to ODS/S, 10% of RNs and 14% of students indicated that they probably or definitely would have been interested in active duty military nursing. An even higher percentage (i.e., 20%) of each group said they would have been willing to consider the Reserve. These figures declined after the Gulf War; the current propensity readings show 6% of RNs and 12% of students positive for active duty, with 11% and 17% for the Reserve. Still, if these numbers were to translate directly into ANC officers, there would be little need for concern over nurse recruiting shortages.

It should be kept in mind, however, that this was a measure of simple interest. It is a big step from being interested to actually seeking an appointment. And, as other surveys of this type (e.g. YATS) have demonstrated, a large percentage of those who do end up joining the military come from the lower propensity ranks. This suggests that, although these data provide an indication of military interest levels and the level of resources needed to sell a more resistant market, they are not wholly valid predictors of the likelihood of volunteering.

Two major questions emerge from these analyses. First, given the generally positive image of the ANC as portrayed by these respondents, why isn't there a higher level of interest in becoming part of the Corps? And secondly, are there steps that can be taken by the ANC to capitalize on the information collected through these two surveys to ensure a fully qualified force in the face of the challenges of the drawdown and health care reform?

The shift in interest in military nursing post-ODS/S would seem to highlight one of the biggest obstacles that the ANC faces in recruiting. Namely, there are a variety of factors of Army life that serve to counteract the bonuses and other incentives to enlist. For instance, the possibility of relocation was seen as a negative or very negative factor by 71% of the RNs and 61% of the students. The potential for serving in/around combat was a negative for 65% of the nurses and 59% of students. The "military lifestyle," length of commitment, and possibility of training in the field were other factors cited by respondents as negatives when considering the Army.

The fact that relocation was such a major negative seems to provide a good "in" for the Reserve/Guard, where this would be unnecessary. Unfortunately, however, weekend service and yearly active duty training were also seen as disincentives by large percentages of both groups.

Another, related factor that may explain reluctance to consider the ANC is that many of these respondents (particularly the RNs) were already in somewhat settled circumstances that would be difficult to disrupt. The fact that being single emerges as a significant predictor of Active Duty propensity supports the notion that individuals with families are less likely to see their way clear to join an institution that requires as much commitment as does the military.

Therefore, it seems that there are some very basic, and necessary, aspects of the military that keep many from considering the ANC. It is unlikely that these "facts of Army life" will change anytime soon. The ability to relocate personnel where needed, to maintain a strict sense of discipline and order within its ranks, and to ask for a minimum commitment of time from those who choose to join are all essential to maintaining readiness. Compromising on these elements could also compromise the ANC's ability to fulfill its mission.

What can the ANC do differently or better to maintain a qualified force? There are a number of ways, particularly after further study, to potentially capitalize on the data collected through these surveys. For instance, there is a strong indication of dissatisfaction with certain key areas of nursing among current RNs. The amount of paperwork involved, the lack of opportunities to obtain additional education with employer-provided funding, the problem of morale in the workplace, and an apparent lack of appreciation for job performance were all rated as important by large majorities of RNs, fully one-third of whom indicated they were dissatisfied to some degree with their current standing on these issues. To the extent that programs and policies are in place (or could be put into place) to address such concerns within the ANC, it would likely add to its already positive image.

A careful examination of these data in terms of the judgments made by the respondents about the ANC may uncover areas of misunderstanding or fundamental lack of knowledge. If these nurses and students aren't informed about the benefits of being an Army nurse officer, it would suggest a need for increased or revamped efforts to get the word out on military nursing.

In the end, though, several facts stand out. First, the ANC is currently evaluated highly, particularly by those already in the profession. There is also widespread agreement that ANC programs provide incentives to join and that military nurses are as capable (if not more so in some respects) as those on the civilian side. This highlights the need to maintain current programs and policies if the positives that shine through these data are to be secured.

However, it is also true that military nursing is not for everyone. There are those individuals who apparently harbor strong doubts about the lifestyle and/or their ability/desire to make the commitment required. To the extent that such concerns are based on ignorance or misperceptions, efforts need to be made to present a more representative picture of military nursing and the ANC. However, the fact is that certain truths remain self-evident. Among them is that, the less one is aware of the special demands and challenges that come with Army nursing, the less the likelihood that such demands and challenges will be successfully met.

References

American Association of Colleges of Nursing (1991). 1990-1991 enrollment and graduations in baccalaureate and graduate programs in nursing. American Association of Colleges of Nursing.

American Hospital Association (1993). RN vacancy rate dips to 5 percent: Recruitment incentives down. American Hospital Association National News.

Cochran, W. G. (1963). Sampling techniques. New York, NY: John Wiley.

Finfgeld, D. L. (1991). What does a military nursing shortage mean to us? Nursing Economics, 9, 44-47.

Hayes, E. (1993). Managing job satisfaction for the long run. Nursing Management, 24, 65-67.

Lerro, P., Morrison, M., & Ramsberger, P. (1992). U.S. Army survey of nurses and nursing students: Sampling frame and survey development (ARI Research Note 92-76). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Lippman, H. (1993). 1993 earnings survey: Double-digit raises disappear. Registered Nurse, 54-61.

Moses, E. B. (1990). The registered nurse population: Findings from the National Sample Survey of Registered Nurses, March 1988. Washington, DC: U.S. Department of Health and Human Services, Public Health Service.

National League for Nursing Press (1993). Nursing data review: 1993. National League for Nursing Press, Division of Research, 19-2529, 5-26.

Neathawk, R. D., Dubuque, S. E., & Kronk, C. A. (1988). Nurses' evaluation of recruitment and retention. Nursing Management, 19(12), 38-45.

Roberts, M. J., Minnick, A., Ginzberg, E., & Curran, C. R. (1989). What to do about the nursing shortage. Hospital Topics, 67, 8-20.

Rosenfeld, P. (1989). RN salary survey. Montvale, NJ: Medical Economics Research Group.

Schultz, S. R., & Brown, K. M. (1994). Nursing in the nineties: Profile of a profession at a crossroad (HumRRO Interim Report IR-PRD-94-02). Alexandria, VA: Human Resources Research Organization.

Stevens, K. A., & Walker, E. A. (1993). Choosing a career: Why not nursing for more high school seniors. Journal of Nursing Education, 32, 13-17.

Stone, B. M., & Turner, K. L. (1992). Analysis of health care professionals: Market research and studies. (DMDC 93-003). Arlington, VA: Defense Manpower Data Center.

U.S. Department of Commerce (1990). Statistical abstract of the United States. Washington, DC: U.S. Government Printing Office.

U.S. Department of Education (1993). Digest of education statistics, 1993. Washington, DC: U.S. Government Printing Office.

Whaley, B. A., Young, W. B., Adams, C. J., & Biordi, D. L. (1989). Targeting recruitment efforts for increased retention. Journal of Nursing Administration, 19, 34-38.

Appendix A

SURVEY OF REGISTERED NURSES

DEPARTMENT OF THE ARMY
OFFICE OF THE SURGEON GENERAL
5109 LEESBURG PIKE
FALLS CHURCH, VA 22041-3258

REPLY TO
ATTENTION OF

Office of the Chief
Army Nurse Corps

Dear Colleague:

In response to the growing difficulty in attracting and retaining nurses, health care institutions are incorporating a number of initiatives that address the role, prestige and compensation of registered nurses. The Army Nurse Corps is also examining the role of the nurse in the Army's health care delivery system.

We are writing to request your participation in an important survey of the nurse population in the United States. It is being conducted for the Army Nurse Corps and the Army Research Institute for the Behavioral and Social Sciences by the Human Resources Research Organization (HumRRO). This effort involves surveying approximately 11,000 registered nurses and 4,000 nursing students nation-wide to identify what attracts individuals to nursing; to gather information about perceptions, attitudes, and degree of satisfaction regarding various aspects of the nursing profession; and to measure perceptions about and awareness of Army nursing.

You have been selected to participate in this important study. Within the next few weeks you will receive a questionnaire from HumRRO. We ask that you take the time to complete this survey, which should take approximately 30 minutes. Your responses are very important to the accuracy of our research. In addition, they are confidential and completely voluntary. The information is for statistical purposes only and will not be connected with your name.

We sincerely appreciate your cooperation in this important effort.

Sincerely,

Nancy R Adams

Nancy R. Adams
Brigadier General, Army Nurse
Chief, Army Nurse Corps

DEPARTMENT OF THE ARMY
OFFICE OF THE SURGEON GENERAL
5109 LEESBURG PIKE
FALLS CHURCH, VA 22041-3258

REPLY TO
ATTENTION OF

Office of the Chief
Army Nurse Corps

Dear RN:

This survey is being conducted for the Army Nurse Corps and the United States Army Research Institute for the Behavioral and Social Sciences by the Human Resources Research Organization (HumRRO). Your responses are very important to the accuracy of our research. In addition, they are confidential and completely voluntary. The information is for statistical purposes only and will not be connected with your name. As with past national surveys we have conducted, the data will be kept confidential and handled in accordance with the Privacy Act. When the requirements of the study have been met, all individual questionnaires will be destroyed.

This survey is designed to gather information covering five basic areas: (1) demographic information such as race, gender, years in nursing, employment status, and education level; (2) the degree of satisfaction nurses have with a number of work-related factors such as patient loads, clinical decision making, degree of authority, collaborative practice, and work environments; (3) the importance RNs and nursing students place on factors such as opportunities for career advancement, specialized education, and work study programs; (4) knowledge/ perception of the military compensation package, Army service, and Army nurses; and (5) exposure to various media and recall of Army nursing recruiting programs.

Your opinions play an important part in this effort. Although your participation is voluntary and there are no penalties for failure to answer any questions, each unanswered item reduces the accuracy of the findings. Thank you for your cooperation. Your efforts are greatly appreciated.

Sincerely,

Nancy R. Adams

Nancy R. Adams
Brigadier General, Army Nurse
Chief, Army Nurse Corps

Enclosure